Smithsonian

{ JULY 2006 }

A Monument Reborn

In our progress towards political happiness my station is new....I walk on untrodden ground.
George Washington to Catharine Macaulay Graham, January 9, 1790

The old Patent Office Building opens its doors following a six-year, $283 million renovation

Found! A New Tomb in Luxor
Breeding a Better Strawberry
A Wild Place Like No Other
Pamplona Beyond the Bulls
Fresh Looks at the Cosmos

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Smithsonian features

{ JULY 2006 · VOLUME 37, NUMBER 4 }

Instead of the usual mummies, the coffins that have been opened so far contain only a bizarre assortment of what appears to be debris.

—"A MYSTERY FIT FOR A PHARAOH," PAGE 64

Grand Reopening

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The U.S. Patent Office Building, home to both the Smithsonian American Art Museum and the National Portrait Gallery, opens its doors this month after a monumental, six-year renovation

BY ADAM GOODHEART

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Two venerable museums used the reconstruction hiatus to rethink their approaches to the display of art, emphasizing a dialogue with visitors

BY ARTHUR LUBOW / PHOTOGRAPHS BY TIMOTHY BELL

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Despite poachers and Maoist insurgents, conservationists are encouraged by India and Nepal's unique approach to protecting tigers, elephants, rhinos and other animals

BY JOHN SEIDENSTICKER AND SUSAN LUMPKIN

64 A Mystery Fit for a Pharaoh

A shy, fluegelhorn-playing Egyptologist in a pith helmet discovered the first new tomb in the Valley of the Kings in 83 years. But what does it all mean?

BY ANDREW LAWLER / ILLUSTRATION BY STAN FELLOWS

72 Finding a Home in the Cosmos

Joel Primack, a pioneer of particle physics, turns his attention to humanity's place in the universe

BY JERRY ADLER

76 Wild in the Yukon

Photographer Jannik Schou braves northern Yukon forests to document a pristine wilderness that environmentalists say is threatened by industry

BY FRANK CLIFFORD / PHOTOGRAPHS BY JANNIK SCHOU

82 Berried Treasure

Horticulturalist Harry Jan Swartz won't rest until he can grow the finicky, highly prized musk strawberry

BY DAVID KARP

88 Pamplona: No Bull

Secular pursuits horn in on sacred rituals at the fiesta popularized by writer Ernest Hemingway

BY ERLA ZWINGLE / PHOTOGRAPHS BY TINO SORIANO

THIS PAGE: A coffin's countenance stares back from the darkness as archaeologists first glimpse the interior of a chamber undisturbed for more than 3,000 years. Photograph by George Johnson.

COVER: Photograph by Timothy Bell.

Smithsonian departments

{ JULY 2006 · VOLUME 37, NUMBER 4 }

Harry Swartz keeps tasting, working his way down the seven rows of strawberry plants. "Floor cleaner," he says of one. "Diesel." "Sweat socks." —"BERRIED TREASURE," PAGE 82

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With his 1948 portrait of retired slugger Babe Ruth, photographer Nat Fein hit a home run **BY LEIGH MONTVILLE**

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For our new department, in which authors invoke their hometowns, America's premier oral historian recalls his 1921 arrival in Chicago **BY STUDS TERKEL**

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How a peculiar grass native to Central America became one of the plant kingdom's runaway successes **BY MICHAEL POLLAN**

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THIS PAGE: By combining flavor with hardiness, horticulturalist Harry Jan Swartz hopes to create the king of the strawberry crop. Photograph by Vincenzo Lombardo / Laura Ronchi collection / Getty Images.

VISIT SMITHSONIAN MAGAZINE ON-LINE: For further reading about our story topics, more images from our photographers, listings of events and exhibitions at the museums, info about Smithsonian Journeys Educational Travel, or to join our readers' panel, please go to www.smithsonian.com

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The risk of muscle breakdown is greater in patients with kidney problems.

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- the antibiotics erythromycin, clarithromycin, and telithromycin
- HIV protease inhibitors (such as indinavir, nelfinavir, ritonavir, and saquinavir)
- the antidepressant nefazodone
- amiodarone (a drug used to treat an irregular heartbeat)
- verapamil (a drug used to treat high blood pressure, chest pain associated with heart disease, or other heart conditions)
- large doses (≥1 g/day) of niacin or nicotinic acid
- large quantities of grapefruit juice (>1 quart daily)

It is also important to tell your doctor if you are taking coumarin anticoagulants (drugs that prevent blood clots, such as warfarin).

Tell your doctor about any prescription and nonprescription medicines you are taking or plan to take, including natural or herbal remedies.

Tell your doctor about all your medical conditions including allergies.

Tell your doctor if you:

- drink substantial quantities of alcohol or ever had liver problems. VYTORIN may not be right for you.
- are pregnant or plan to become pregnant. Do not use VYTORIN if you are pregnant, trying to become pregnant or suspect that you are pregnant. If you become pregnant while taking VYTORIN, stop taking it and contact your doctor immediately.
- are breast-feeding. Do not use VYTORIN if you are breast-feeding.

Tell other doctors prescribing a new medication that you are taking VYTORIN.

How should I take VYTORIN?

- Take VYTORIN once a day, in the evening, with or without food.
- Try to take VYTORIN as prescribed. If you miss a dose, do not take an extra dose. Just resume your usual schedule.
- Continue to follow a cholesterol-lowering diet while taking VYTORIN. Ask your doctor if you need diet information.
- Keep taking VYTORIN unless your doctor tells you to stop. If you stop taking VYTORIN, your cholesterol may rise again.

What should I do in case of an overdose?

Contact your doctor immediately.

What are the possible side effects of VYTORIN?

See your doctor regularly to check your cholesterol level and to check for side effects. Your doctor may do blood tests to check your liver before you start taking VYTORIN and during treatment.

In clinical studies patients reported the following common side effects while taking VYTORIN: headache and muscle pain (see What should I tell my doctor before and while taking VYTORIN?).

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FROM THE EDITOR

Let There Be Light

From dark and cavernous to room for everybody **BY CAREY WINFREY**

WHEN HE LIVED IN WASHINGTON, D.C. in the late 1990s, Adam Goodheart often visited the Smithsonian American Art Museum and the National Portrait Gallery in the Patent Office Building, which has just undergone a massive renovation. "I remember how dark and cavernous it felt," says Goodheart, who wrote our cover story ("Back to the Future," p. 40). "But looking at it now, it's like night into day—literally, because they've let so much light into the building and just brightened everything and opened everything up." Goodheart says he approached writing the story "as if the building had a life of its own, ups and downs in much the way that a person does. I looked for moments from that history. For example, the roast pheasants falling to the floor and being stepped on at Lincoln's second inaugural ball, or the architect of the building, Robert Mills, being called an idiot by the workmen. Those little details brought the story alive for me." And for us.

VENICE-BASED Erla Zwingle was not exactly ecstatic about covering the fiesta in Pamplona, Spain ("Pamplona: No Bull," p. 88). "I thought it was going to be total chaos," she says, "and in fact I was really dreading it." But she discovered a quieter side of the notoriously raucous goings-on: "By the time the sun comes up, the drunk and crazy people are comatose. So if you're a day person, you can escape all that." As for Ernest Hemingway, who popularized the fiesta in a 1926 novel, she says his ghost didn't materialize. "I didn't end up in *The Sun Also Rises*, but I didn't end up in *Lord of the Flies* either, which is what I was anticipating. Since I wasn't going to drink and dance in the street, I wasn't sure where I was going to end up in the mix. But there was room for me too. There was room for little old grannies. There was room for everybody. It was great!"

COURTESY ERLA ZWINGLE

Zwingle and helpmate Meg Irigaray in the Plaza de Toros: Where's Papa?

WITH THIS ISSUE we introduce "My Kind of Town," a department presenting distinguished American writers telling us about the town or city in which they grew up or now live. Our debut offering, appropriately enough given the department's title, is by the eminent oral historian Studs Terkel, who recalls his arrival in Chicago, a city with which he is practically synonymous, a scant 85 years ago.

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LETTERS READERS RESPOND TO THE **MAY** ISSUE

This "shrine of democracy" ("Mount Rushmore") honors men who sought the eradication of America's first peoples. Let us not forget that Theodore Roosevelt, one of the four presidents immortalized, once said, "I don't go so far as to think that the only good Indians are the dead Indians, but I believe nine out of every ten are, and I shouldn't like to inquire too closely into the case of the tenth."

KATHRYN ASKINS
CONCORD, NEW HAMPSHIRE

BIBLICAL GEOGRAPHY

OSTENSIBLY AN ACCOUNT of the debate between archaeological literalists and minimalists about the historical accuracy of the Hebrew Bible, Jennifer Wallace's "Shifting Ground in the Holy Land" is instead an exercise in thinly disguised anti-Israel bias. She portrays West Bank settlers as fanatical true believers while failing to mention the Palestinian mob whose contribution to archaeology was the destruction of Joseph's Tomb in Nablus in October 2000. Whatever one thinks of Israel Finkelstein's minimalist views, at least he believes there was an ancient Israel that is part of the historic chain linking today's Jewish people to the Holy Land.

HAROLD BRACKMAN
SAN DIEGO, CALIFORNIA

BOOMING CHINA

AS A FREQUENT business traveler to China, I find that the description of Shenyang ("A Tale of Two Chinas") as economically depressed is inaccurate. Shenyang is a booming city, center of an ambitious expansion plan that covers Liaoning Province, of which Shenyang is the provincial capital. I have been in a residential high-rise in Shenyang that could match the apartment in the so-called more prosperous Wenzhou. And Wenzhou also has people living in abject poverty. Every area in China contains shuttered or leveled former state-owned enterprises, many of which were notoriously inefficient.

R. CARTER FREEMAN
PASADENA, CALIFORNIA

Author Stephen Glain responds:
R. Carter Freeman correctly notes that Shenyang, like most Chinese cities, is enjoying a construction boom, but it is easy to mistake new construction for broad-scale prosperity; the people who patronize the city's most impressive housing estates, shopping malls and hotels amount to a tiny percentage of Shenyang's citizenry. The per capita income for Shenyang's Liaoning Province in 2005 was about two-thirds that of Wenzhou's Zhejiang Province. True, many parts of China are more impoverished than Shenyang, but the contrast is as much about history and culture as it is about income levels and real estate development. Whereas Wenzhou represents China's future—a fierce entrepreneurial spirit that thrives independent of the central government—Shenyang is still coping with the legacy of an inefficient command economy.

REVOLUTIONARY

IT WAS EVOCATIVE to be in Frombork Cathedral last November when archaeologists announced that the grave of Nicolaus Copernicus had been found ("Copernicus Unearthed"). I told the congregation that Copernicus was the first to show that a heliocentric arrangement was fully compatible with astronomical observations and that he had invented the idea of a solar system. But in those days, before the telescope, there was no way for Copernicus to *prove* that the earth moved. The sun-centered system gained acceptance because of its wonderful aesthetic appeal, for it not only gave a natural explanation for the motion of the planets, but it also demonstrated a linkage between the time it took the planets to circumnavigate the sun and the size of their orbits.

Copernicus was vaguely aware that Aristarchus had suggested that the sun, rather than the earth, was fixed, and he had mentioned this in the original draft of his treatise. As he prepared his Latin text for publication, he substituted a quotation in Greek, which did not mention the ancient Greek astronomer by name. I'm sure Copernicus would have been happy to acknowledge him: the ethos of the 16th century was to be not too original!

OWEN GINGERICH
HARVARD-SMITHSONIAN CENTER FOR ASTROPHYSICS
CAMBRIDGE, MASSACHUSETTS

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3

Last Hurrah

Everyone wanted to see the Babe the day they retired his number; photographer Nat Fein saw the story

BY LEIGH MONTVILLE

NAT FEIN was not a sports photographer. His usual assignments for the *New York Herald-Tribune* sent him around the big city for pictures of dogs and children and whatever oddities struck his eye—human-interest stuff. He was proud that these pictures generally needed little in the way of captioning, that the composition captured the moment. He once took a shot of a cemetery in the background, a one-way sign in the foreground. Enough said.

On June 13, 1948, the 33-year-old former copy boy from Manhattan's East Side was handed a different assignment: go to Yankee Stadium. The regular sports photographer had phoned in sick.

The occasion was the 25th anniversary of the famous ballpark in the Bronx. The New York Yankees had put together festivities that included a two-inning exhibition game between members of the 1923 team that had opened the stadium and a team of later stars. The scheduled highlight would be the retirement of Babe Ruth's pinstriped uniform, the celebrated former slugger's No. 3 never to grace another Yankee's back.

Sadness was an inescapable part of the day. The Sultan of Swat, the Bambino, the Bam, the Big Bam, the Caliph of Clout, the Monster of Mash, the Wazir of Wham—the 53-year-old Babe, the greatest player in baseball history, holder of the record for most

The Babe's last public moment: no one in the press had mentioned the word "cancer," but the man was clearly very sick.

Fein arrived early. He was shocked by what he saw.

Fein, whose usual assignments were for human-interest stories (a 1950 fire at the Grace Line Pier in Manhattan), strove for compositions that captured the moment.

home runs in a season (60) and most in a career (714)—was dying. He had been in and out of hospitals for almost two years. The word "cancer" had never been mentioned publicly, part of a gentlemen's agreement among sportswriters, but he clearly was very sick. This would be Babe Ruth's last public moment.

Fein arrived early. Ruth was at his old locker, but Fein was shocked by what he saw. The player who had retired only 13 years earlier needed two men's help just to put on his uniform.

Fein and other photographers approached. Ruth always had been a willing subject. In the 1920s, he was one of the most photographed people on the planet, standing for pictures with whatever props or dignitaries were at hand. His broad face, with its flat nose and tiny eyes, was recognized everywhere. He posed now tying the laces on his spikes. But it was a staged shot, says David Nieves, executor and curator of the Nat Fein estate: "He was too weak at that time to tie his own shoes."

The photographers went to the field for the ceremony. The Babe, wrapped in an overcoat, eventually came to the visitors' dugout along third base, accompanied by a male nurse. The Cleveland Indians were the Yankees' opponents for the day's scheduled game, and he chatted with Indians pitching coach Mel Harder, whom he had tagged for five straight hits on a long-ago afternoon.

Various returning Yankees were announced and ran onto the field. When his name was called, Ruth shed his overcoat, picked up the nearest bat, which belonged to future Hall of Fame pitcher Bob Feller, and used it as a cane to climb the dugout steps. The crowd of 49,641 stood and applauded. Ruth walked slowly toward the plate.

Fein (in the *Herald-Tribune* darkroom, c. 1940) started his career as a copy boy.

Most of the photographers stood along the base lines to capture Ruth's expression as he heard the cheers. Nat Fein had other ideas. He thought, first, that the Babe's face, so drawn and different, was not the face people wanted to remember. He thought, second, that the story was that Ruth's No. 3 was being retired. The only place the No. 3 could be seen was from behind Ruth.

So that is where Fein stood.

Ruth stood two paces from home plate, slightly hunched, Feller's bat in his right hand for support, his own Yankees cap in his left hand by his side, uniform loose on his body. The stands of the big ballpark towered over him. The championship banners he had helped win hung from the facade. A band played "Auld Lang Syne."

Using the Speed Graphic camera his mother had purchased to start his career—such an extravagant piece of business she needed three cosigners for the $90 loan—Fein looked through a viewfinder that showed the scene upside-down. While most of the other photographers used flashbulbs, he used available light. And he captured arguably the most famous image in American sports history.

"The picture is from a low angle, the sweep of the entire stadium, the Babe looking out at his world, the world he once ruled," *Sports Illustrated* photographer Heinz Kluetmeier says. ". . . It evokes our emotions without a word being said."

The Babe Bows Out, as the picture later became known, appeared on the front of the *Herald-Tribune* the next day, and in papers around the country after the Associated Press picked it up. Two months and three days after the photograph was taken, on August 16, 1948, George Herman Ruth died.

Nat Fein received the Pulitzer Prize for the picture in 1949. It was the first sports photo so honored. Fein's newspapering ended with the demise of the *Herald-Tribune* in 1966, but he took pictures until he died in 2000, at 86.

LEIGH MONTVILLE *wrote* The Big Bam: The Life and Times of Babe Ruth.

HULTON ARCHIVE / GETTY IMAGES; NAT FEIN ESTATE; P.12,13 NAT FEIN / HULTON ARCHIVE / GETTY IMAGES

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WILD THINGS

LIFE AS WE KNOW IT

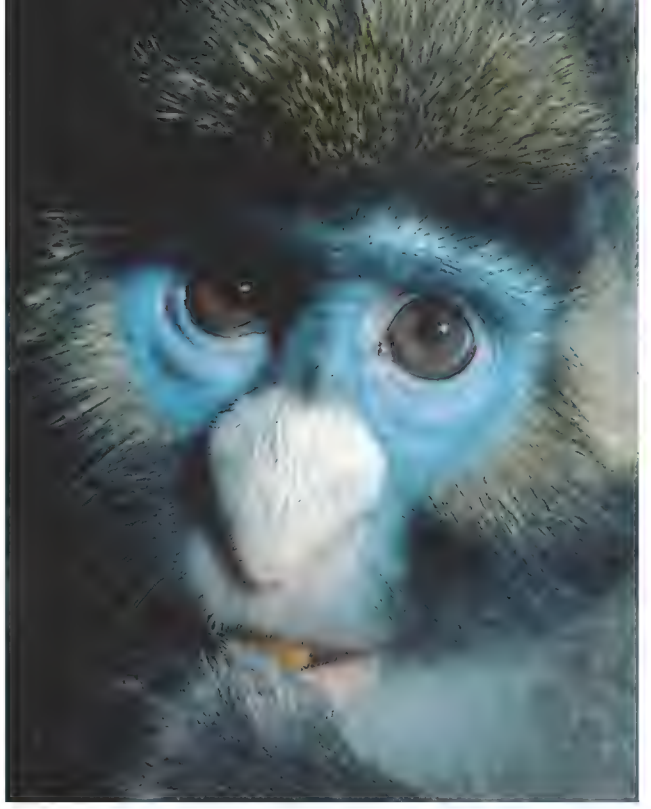
WHOM CAN YOU TRUST?

How does an animal inclined toward altruism, which often results in a loss of mating opportunities, pass that trait along? A new study shows how one species solves the problem—by recognizing the selfless trait in others and coming to the defense of only those that share it. The work, led by researchers at the University of California at Santa Cruz, investigated male side-blotched lizards. Some blue-throated members of the species defend other, unrelated blues against orange- or yellow-throated rivals. But they somehow know not to team up with selfish blue-throated males. As a result, self-sacrifice helps those that can pass along altruistic genes.

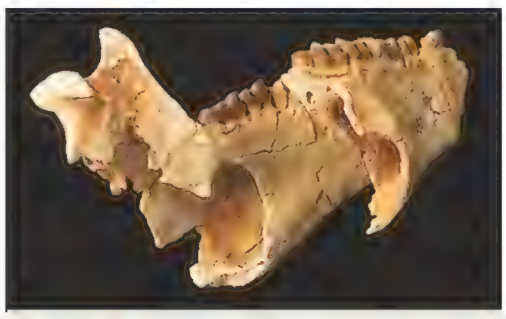
Visit Smithsonian.com to see lizards in combat and more.

MONKEY TALK

Scientists from the University of St. Andrews have gathered the first evidence that monkeys can string words together. Tree-dwelling putty-nosed monkeys (right) in Nigeria combine "pyow," warning of a possible threat below, and "hack," about a threat above, to express a new, more urgent message: *flee now!* Is this *language*? Sort of, if the communication is learned rather than innate, researchers say. About that, they're not yet sure.



OUCH! Researchers in Germany have documented that the stingers covering sea anemone tentacles (a starlet sea anemone, left) accelerate from zero to 80 miles per hour in 700 nanoseconds, a million times faster than a race car. That's one of the fastest cellular processes in nature.



Observed

NAME: Thyrohyrax, ancient predecessor of hyraxes, rabbit-size mammals found from the Middle East to southern Africa.
SEXUAL IDENTITY: Reassigned. It was believed that the species' long, banana-curved lower jaws belonged to females. But after examining the fossilized dental record, Duke Lemur Center researchers concluded that the jaws belonged to males, which had bigger lower incisors.
DATE-NIGHT IMPLICATIONS: The male's weird jawbone (above) includes a hollow chamber on each side. Did males somehow use the chamber to produce sound, possibly during courtship? If so, Thyrohyrax would be the only known mammal thus equipped.
OVERALL SUCCESS: Not great, apparently. Thyrohyrax died out probably about 30 million years ago; its descendants have no such jaw or chamber.

TAKE A DEEP BREATH After aquatic crabs molt, they fill up with water to stabilize their new, flimsy, oversized shells. But how do land-dwellers such as the blackback crab (below) fill out a new shell? University of North Carolina scientists say they suck in air—an adaptation that may have allowed them to move ashore.

CLOCKWISE FROM TOP RIGHT: BLICKWINKEL / ALAMY; T. NUCHTER & T. HOLSTEIN (HEIDELBERG UNIVERSITY), NATURE 2005; CHRIS HILDRETH / DUKE PHOTOGRAPHY; WILLIAM M. KIER / UNIVERSITY OF NORTH CAROLINA; SUZANNE MILLS AND BARRY SINERVO

You don't have to plan around your arthritis pain.

Is it the stairs you climb? The events you attend? Or the people you visit? If you have osteoarthritis, it colors everything you do. But you shouldn't have to miss out on the important things. Ask your doctor about prescription CELEBREX. It was designed to target the source of your pain, stiffness, and inflammation.

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CELEBREX is one of the most studied arthritis medicines on the market. But you should know that CELEBREX, like all medicines, has both risks and benefits. It's important to talk to your doctor about treatment options to find out which one is right for you. Your doctor may also recommend other kinds of treatments.

Important Information: CELEBREX, like all prescription NSAIDs, may increase the chance of a heart attack or stroke that can lead to death. It should not be used right before or after certain heart surgeries.
Serious skin reactions or stomach and intestine problems such as bleeding and ulcers can occur without warning and may cause death.

Patients taking aspirin and the elderly are at increased risk for stomach bleeding and ulcers.

Tell your doctor if you:

- Are pregnant
- Have a history of ulcers or bleeding in the stomach or intestines
- Have high blood pressure or heart failure
- Have kidney or liver problems

People with aspirin-sensitive asthma or allergic reactions due to aspirin or other arthritis medicines or certain drugs called sulfonamides should not take CELEBREX.

Prescription CELEBREX should be used exactly as prescribed at the lowest dose possible and for the shortest time needed.

For more information, call 1-888-CELEBREX (1-888-235-3273) or visit www.CELEBREX.com

Please see important information about CELEBREX and other NSAIDs on next page.

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CELEBREX®
(celecoxib capsules)

Medication Guide
for Non-Steroidal Anti-Inflammatory Drugs (NSAIDs)
(See the end of this Medication Guide for a list of prescription NSAID medicines.)

What is the most important information I should know about medicines called Non-Steroidal Anti-Inflammatory Drugs (NSAIDs)?

NSAID medicines may increase the chance of a heart attack or stroke that can lead to death.
This chance increases:
- with longer use of NSAID medicines
- in people who have heart disease

NSAID medicines should never be used right before or after a heart surgery called a "coronary artery bypass graft (CABG)."
NSAID medicines can cause ulcers and bleeding in the stomach and intestines at any time during treatment. Ulcers and bleeding:
- can happen without warning symptoms
- may cause death

The chance of a person getting an ulcer or bleeding increases with:
- taking medicines called "corticosteroids" and "anticoagulants"
- longer use
- smoking
- drinking alcohol
- older age
- having poor health

NSAID medicines should only be used:
- exactly as prescribed
- at the lowest dose possible for your treatment
- for the shortest time needed

What are Non-Steroidal Anti-Inflammatory Drugs (NSAIDs)?
NSAID medicines are used to treat pain and redness, swelling, and heat (inflammation) from medical conditions such as:
- different types of arthritis
- menstrual cramps and other types of short-term pain

Who should not take a Non-Steroidal Anti-Inflammatory Drug (NSAID)?
Do not take an NSAID medicine:
- if you had an asthma attack, hives, or other allergic reaction with aspirin or any other NSAID medicine
- for pain right before or after heart bypass surgery

Tell your healthcare provider:
- about all of your medical conditions.
- about all of the medicines you take. NSAIDs and some other medicines can interact with each other and cause serious side effects. **Keep a list of your medicines to show to your health care provider and pharmacist.**
- if you are pregnant. **NSAID medicines should not be used by pregnant women late in their pregnancy.**
- if you are breastfeeding. **Talk to your doctor.**

What are the possible side effects of Non-Steroidal Anti-Inflammatory Drugs (NSAIDs)?

Serious side effects include:	**Other side effects include:**
• heart attack • stroke • high blood pressure • heart failure from body swelling (fluid retention) • kidney problems including kidney failure • bleeding and ulcers in the stomach and intestine • low red blood cells (anemia) • life-threatening skin reactions • life-threatening allergic reactions • liver problems including liver failure • asthma attacks in people who have asthma	• stomach pain • constipation • diarrhea • gas • heartburn • nausea • vomiting • dizziness

Get emergency help right away if you have any of the following symptoms:
- shortness of breath or trouble breathing
- chest pain
- weakness in one part or side of your body
- slurred speech
- swelling of the face or throat

Stop your NSAID medicine and call your healthcare provider right away if you have any of the following symptoms:
- nausea
- more tired or weaker than usual
- itching
- your skin or eyes look yellow
- stomach pain
- flu-like symptoms
- vomit blood
- there is blood in your bowel movement or it is black and sticky like tar
- skin rash or blisters with fever
- unusual weight gain
- swelling of the arms and legs, hands and feet

These are not all the side effects with NSAID medicines. Talk to your healthcare provider or pharmacist for more information about NSAID medicines.

Other information about Non-Steroidal Anti-Inflammatory Drugs (NSAIDs)
- Aspirin is an NSAID medicine but it does not increase the chance of a heart attack. Aspirin can cause bleeding in the brain, stomach, and intestines. Aspirin can also cause ulcers in the stomach and intestines.
- Some of these NSAID medicines are sold in lower doses without a prescription (over-the-counter). Talk to your healthcare provider before using over-the-counter NSAIDs for more than 10 days.

NSAID medicines that need a prescription

Generic Name	Tradename
Celecoxib	Celebrex
Diclofenac	Cataflam, Voltaren, Arthrotec (combined with misoprostol)
Diflunisal	Dolobid
Etodolac	Lodine, Lodine XL
Fenoprofen	Nalfon, Nalfon 200
Flurbiprofen	Ansaid
Ibuprofen	Motrin, Tab-Profen, Vicoprofen (combined with hydrocodone), Combunox (combined with oxycodone)
Indomethacin	Indocin, Indocin SR, Indo-Lemmon, Indomethagan
Ketoprofen	Oruvail
Ketorolac	Toradol
Mefenamic Acid	Ponstel
Meloxicam	Mobic
Nabumetone	Relafen
Naproxen	Naprosyn, Anaprox, Anaprox DS, EC-Naproxyn, Naprelan, Naprapac (copackaged with lansoprazole)
Oxaprozin	Daypro
Piroxicam	Feldene
Sulindac	Clinoril
Tolmetin	Tolectin, Tolectin DS, Tolectin 600

This Medication Guide has been approved by the U.S. Food and Drug Administration.

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MY KIND OF TOWN

CHICAGO, ILLINOIS

JON LOWENSTEIN

A City Called Heaven

America's best-known oral historian tells his own story **BY STUDS TERKEL**

Hog Butcher for the World,
Tool Maker, Stacker of Wheat,
Player with Railroads and the
Nation's Freight Handler;
Stormy, husky, brawling,
City of the Big Shoulders . . .

CARL SANDBURG, the white-haired old Swede with the wild cowlick, drawled out that brag in 1914. Today, he is regarded in more soft-spoken quarters as an old gaffer, out of fashion, more attuned to the street corner than the class in American studies.

Unfortunately, there is some truth to the charge that his dug-out-of-the-mud city, sprung-out-of-the-fire-of-1871 Chicago, is no longer what it was when the Swede sang that song. It is no longer the slaughterhouse of the hang-from-the-hoof heifers. The stockyards have gone to feedlots in, say, Clovis, New Mexico, or Greeley, Colorado, or Logansport, Indiana. It is no longer the railroad center, when there were at least seven awesome depots, where a

thousand passenger trains refueled themselves each day; and it is no longer, since the Great Depression of the 1930s, the stacker of wheat.

During all these birth years of the 21st century, the unique landmarks of American cities have been replaced by Golden Arches, Red Lobsters, Pizza Huts and Marriotts, so you can no longer tell one neon wilderness from another. As your plane lands, you no longer see old landmarks, old signatures. You have no idea where you may be. A few years ago, while I was on a wearisome book tour, I mumbled to the switchboard operator at the motel, "Please wake me at 6 a.m. I must be in Cleveland by noon." Came the response: "Sir, you *are* in Cleveland." That Chicago, too, has so been affected is of small matter. It has been and always will be, in the memory of the 9-year-old boy arriving here, the archetypal American city.

One year after Warren G. Harding's anointment, almost to the day, the boy stepped off the coach at the La Salle Street depot. He had come from east of the Hudson and had been warned by the kids on the Bronx block to watch out for Indians. The boy felt not unlike Ruggles, the British butler, on his way to Red Gap. Envisioning painted faces and feathered war bonnets.

August 1921. The boy had sat up all night, but was never more awake and exhilarated. At Buffalo, the vendors had passed through the aisles. A cheese sandwich and a half-pint carton of milk was all he had during that twenty-hour ride. But on this morning of the great awakening, he wasn't hungry.

His older brother was there at the station. Grinning, gently jabbing at his shoulder. He twisted the boy's cap around. "Hey, Nick Altrock," the brother said. He knew the boy knew that this baseball clown with the turned-around cap had once been a great pitcher for the White Sox. The boy's head as well as his cap was awhirl.

"I'm 94. I was born in 1912. The year the *Titanic* went down, I came up," Studs Terkel quipped in a UC Berkeley interview.

There was expensive-looking luggage carried off the Pullmans. Those were the cars up front, a distant planet away from the day coaches. There were cool Palm Beach-suited men and even cooler, lightly clad women stepping down from these cars. Black men in red caps—all called George—were wheeling luggage carts toward the terminal. My God, all those bags for just two people. Twentieth Century Limited, the brother whispered. Even got a barbershop on that baby.

There were straw suitcases and bulky bundles borne elsewhere. These were all those other travelers, some lost, others excitable in heavy, unseasonal clothing. Their talk was broken English or a strange language or an American accent foreign to the boy. Where were the Indians?

This was Chicago, indubitably the center of the nation's railways, as the Swede from Galesburg had so often sung out. Chicago to Los Angeles. Chicago to Anywhere. All roads led to and from Chicago. No wonder the boy was bewitched.

Chicago has always been and still is the City of Hands. Horny, calloused hands. Yet, here they came: the French *voyageurs*; the Anglo traders; the German burghers many of whom were the children of those dreamers who dared dream of better worlds. So it was that the Chicago Symphony Orchestra came into being; one of the world's most regarded. It was originally Teutonic in its repertoire; now it is universal.

They came, too, from Eastern Europe as Hands. The Polish population of Chicago is second only to that of Warsaw. They came from the Mediterranean and from below the Rio Grande; and there was always the inner migration from Mississippi, Arkansas, Louisiana and Tennessee. The African-American journalist, grandson of slaves, spoke with a touch of nostalgia, memories of his hometown, Paris. That is, Paris, Tennessee. "Out in the fields, we'd hear the whistle of the Illinois Central engineer. OOOweee! There goes the IC to—Chica-a-ago!" It was even referred to in the gospel song "City Called Heaven."

The city called heaven, where there were good jobs in the mills and you did not have to get off the sidewalk when a white passed by. Jimmy Rushing sang the upbeat blues, "Goin' to Chicago, Baby, Sorry I Can't Take You."

Here I came in 1921, the 9-year-old, who for the next 15 years lived and clerked at the men's hotel, the Wells-Grand. (My ailing father ran it, and then my mother, a much tougher cus-

This was Chicago, indubitably the center of the nation's railways. No wonder the boy was bewitched.

STUDS TERKEL *is currently working on a memoir, tentatively titled* Touch and Go. *Parts of this essay first appeared in* Chicago *(1985).*

JON LOWENSTEIN

"Guess which cookie has more real fruit than an entire Nutri-Grain® bar?"
(Hint: It rhymes with Wig Flootens)

-The Snack Fairy

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Hog butcher for the world: In 1971, the last of Chicago's stockyards officially closed.

tomer, took over.)

To me, it was simply referred to as the Grand, the Chicago prototype of the posh pre-Hitler Berlin Hotel. It was here that I encountered our aristocrats as guests: the boomer firemen, who blazed our railroad engines; the seafarers who sailed the Great Lakes; the self-educated craftsmen, known as the Wobblies but whose proper name was the Industrial Workers of the World (IWW). Here in our lobby, they went head-to-head with their bêtes noires, the anti-union stalwarts, who tabbed the IWW as the acronym of "I Won't Work."

Oh, those were wild, splendiferous debates, outdoing in decibel power the Lincoln-Douglas bouts. These were the Hands of Chicago making themselves heard loud and clear. It was the truly Grand Hotel, and I felt like the concierge of the Waldorf-Astoria.

There were labor battles, historic ones, where the fight for the eight-hour day had begun. It brought forth the song: "Eight hours we'd have for working, eight hours we'd have for play, eight hours for sleeping, in free Amerikay." It was in Chicago that the Haymarket Affair took place and four men were hanged in a farcical trial that earned our city the world's opprobrium. Yet it is to our city's honor that our governor, John Peter Altgeld, pardoned the three surviving defendants in one of the most eloquent documents on behalf of justice ever issued.

The simple truth is that our God, Chicago's God, is Janus, the two-faced one. One is that of Warner Brothers movie imagination, with Jimmy Cagney and Edward G. Robinson as our sociopathic icons. The other is that of Jane Addams, who introduced the idea of the Chicago Woman and world citizen.

It was Chicago that brought forth Louis Sullivan, whom Frank Lloyd Wright referred to as Lieber Meister. Sullivan envisioned the skyscraper. It was here that he wanted to touch the heavens. Nor was it any accident that young Sullivan corresponded with the elderly Walt Whitman, because they both dreamed of democratic vistas, where Chicago was the city of man rather than the city of things. Though Sullivan died broke and neglected, it is his memory that glows as he is recalled by those who followed Wright.

What the 9-year-old boy felt about Chicago in 1921 is a bit more mellow and seared. He is aware of its carbuncles and warts, a place far from Heaven, but it is his town, the only one he calls home.

Nelson Algren, Chicago's bard, said it best: "Like loving a woman with a broken nose, you may well find lovelier lovelies. But never a lovely so real."

E.O. HOPPÉ / CORBIS

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He'd drive one himself

if only it came equipped

with lower door handles.

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BOLDMOVES

Let's review:

36 mpg.*

SUV capability.

A really big world.

You are so there.

Escape Hybrid

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*EPA estimated 36 city/31 hwy mpg, FWD.
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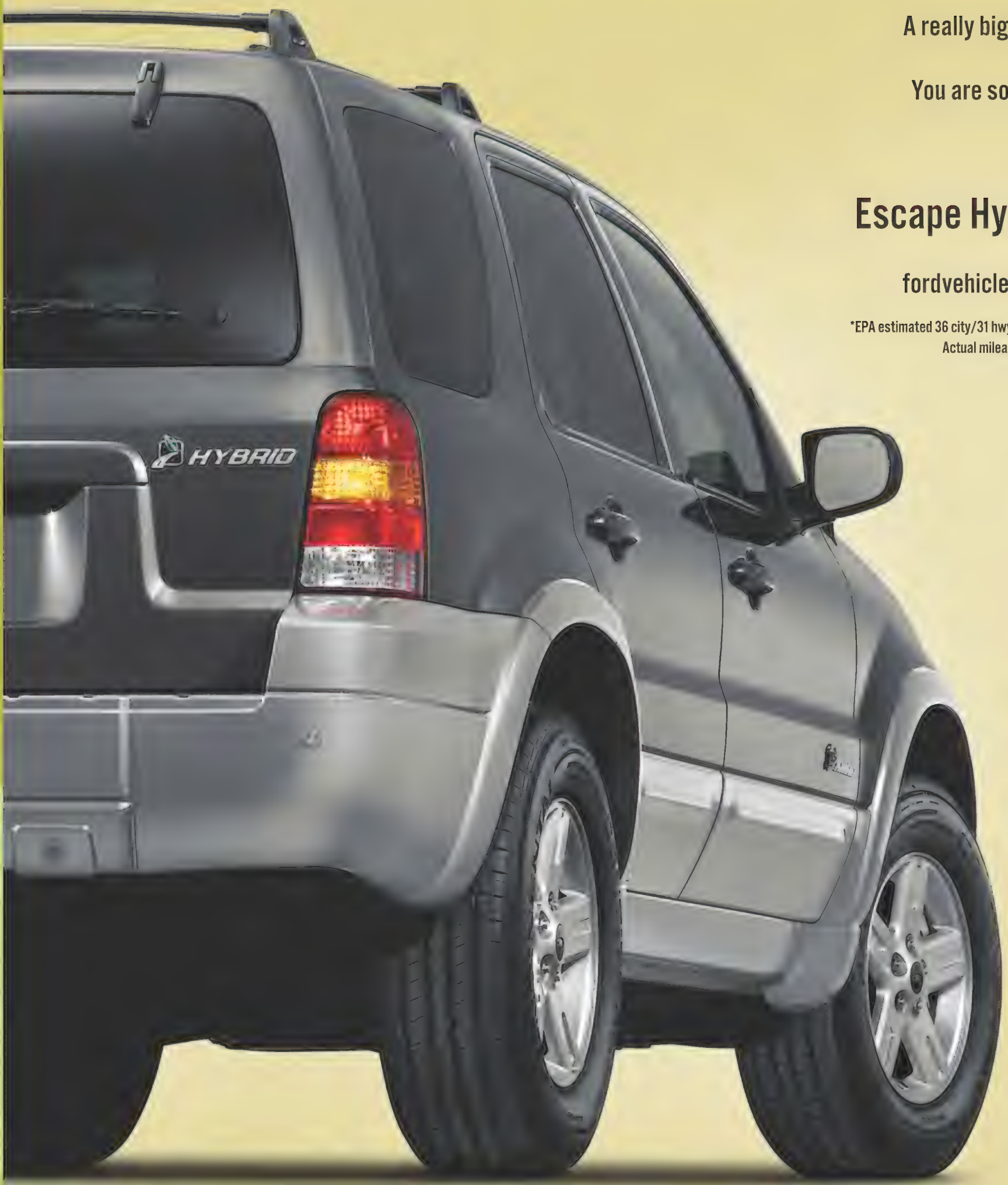

INTERVIEW

JOE ROBINSON

VACATION ADVOCATE, SANTA MONICA, CALIF.

ANN SUMMA

His prescription for overworked Americans: chill

BY JENNIFER DRAPKIN

Americans take fewer days off than the Japanese, Chinese, British and all continental Europeans. Journalist Joe Robinson, founder of the group Work to Live, which advocates more generous vacations and a U.S. minimum paid leave law, is trying to change that.

ARE WORK HOURS IN THE UNITED STATES GETTING LONGER OR SHORTER? Longer. Almost 40 percent of Americans are working 50 hours a week. And as for vacations, people may have two weeks or a week on paper, but many don't take it. There's too much pressure to stay on the job. Some companies have eliminated vacations completely.

BUT CAN'T HARD WORK BE A SOURCE OF PRIDE? I hear that all the time: "That's what makes this country great." It is a myth we have tricked ourselves into believing. The Dutch, the French, the Norwegians, the Belgians and the Irish are more productive per hour than we are, even with their four- and five-week vacations. We are number one in terms of productivity per person only because of all the overtime we do And that's the number we count.

BUT ISN'T THAT THE MOST IMPORTANT NUMBER? It depends on your values. What is a gross national product when you don't have a life? A few years ago, the Norwegians found that they were 14 percent more productive than we are. So they elected to take more time off.

ARE WE REALLY SO DIFFERENT FROM THE REST OF THE WORLD? Within the past year England added a week to its annual vacation policy. New Zealand added a week the year before. The Chinese have three weeks—Golden Weeks. Americans have a suspicion of leisure that goes back to the Puritan work ethic: idle hands are the devil's hands.

WOULDN'T A MINIMUM PAID LEAVE LAW SUPPRESS WAGES AND MAKE THINGS MORE EXPENSIVE? No, if anything, it would raise the bar on the treatment of employees. You would have healthier employees who would lower costs for employers. People made the same argument in the 1930s about Social Security and the minimum wage.

WHAT ARE YOU WORKING ON RIGHT NOW? Through the group Take Back Your Time, we put together an agenda calling for three-week paid minimum leave and family-leave. We would also like to make Election Day a holiday. We've had a great reception from staff of congresspeople. Political consultants think that the issue of time and how we don't have it anymore to spend with our families is going to be a big issue in the upcoming election. It's really a family values issue.

YOUR BOOK, *WORK TO LIVE*, IS DEDICATED TO YOUR PARENTS AND THE VACATIONS YOU TOOK TOGETHER. We got in this old Ford station wagon and drove around the American West and went to campgrounds and saw the great national parks and bought tacky souvenirs. Those are the times from childhood that I remember most.

Visit Smithsonian.com for additional interviews.

THE AVERAGE COST OF RAISING HER WILL BE $249,000*. THEN COMES COLLEGE, AND THINGS START TO GET EXPENSIVE.

Preparing for 18+ years MADE POSSIBLE WITH WACHOVIA

In the years to come, it'll cost you more and more to be the parent you want to be. That's where Wachovia comes in. As the nation's fourth largest bank holding company and third largest brokerage, we're here to provide advice on all things money. Because wherever you are financially, we're right there with you.

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*Source: http//moneycentral.msn.com/articles/family/kids/tlkidscost.asp

THIS MONTH IN HISTORY

JULY ANNIVERSARIES

MOMENTOUS OR MERELY MEMORABLE

30 YEARS AGO
RED PLANET, YES; GREEN MEN, NO

After an 11-month journey, *Viking I* lands on Mars on July 20, 1976, and transmits the first color image from the planet's surface. For six years the lander and its sister, *Viking II*, analyze soil samples and Martian weather. Today, two rovers on Mars have found evidence of water and are programmed to probe until September 2006.

140 YEARS AGO CABLE GUYS

Enveloped in heavy fog, the men of the steamship *Great Eastern* splice the last link in the first permanent transatlantic telegraph cable on July 28, 1866. Running from Ireland to Newfoundland, the 2,500-mile line ferries messages across the big pond at 12 words per minute. Satellite communication gets going in 1962.

100 YEARS AGO VINDICATED

A 12-year French scandal ends in July 1906 when Capt. Alfred Dreyfus, twice tried and convicted of selling military secrets to Germany, is acquitted of all charges. The Dreyfus debate—is he a traitor or victim of an anti-Semitic frame-up?—had split the nation and prompted military reform and separation of church and state. Dreyfus, who had spent five years imprisoned on Devil's Island, is awarded the Legion of Honor. He dies in 1935 at age 75.

60 YEARS AGO
ITSY BITSY TEENY WEENY

Although two-piece bathing suits can be seen in the murals of Pompeii, the modern bikini is invented in Paris in 1946. Auto engineer Louis Reard, competing with designer Jacques Heim and his swimsuit, the Atome, names his own skimpy model after the atom splitting nuclear test at Bikini Atoll. His slogan? "Smaller than the Atome."

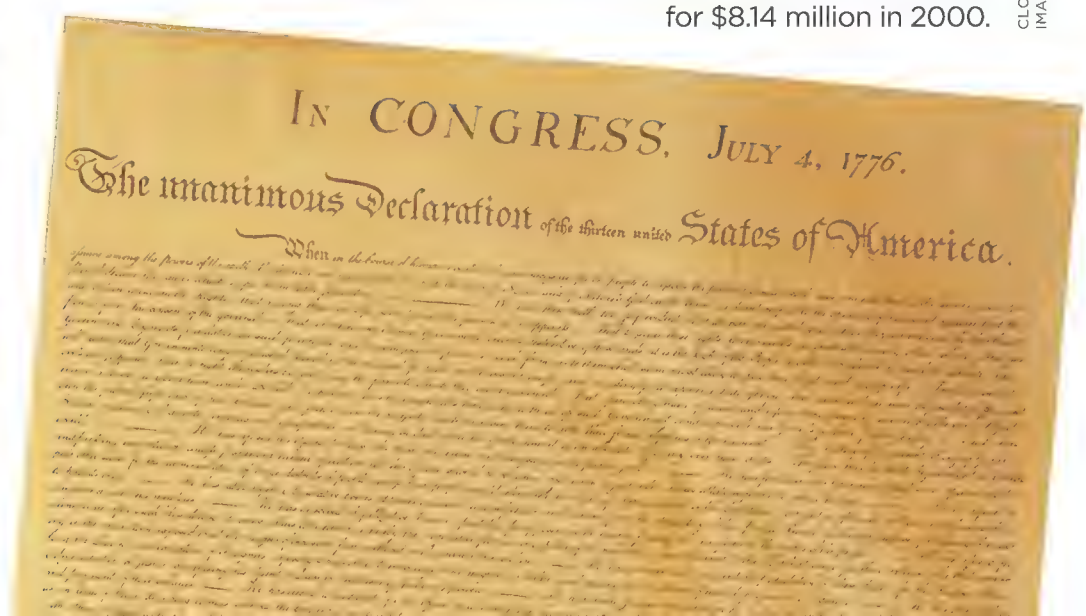
100 YEARS AGO
PITCHIN' MAN

Leroy "Satchel" Paige is born July 7, 1906, in Mobile, Alabama. The Negro League's star pitcher, Paige becomes the oldest rookie in the Majors when he debuts with the Cleveland Indians July 9, 1948, at 42. The key to staying young, he says, is never looking back: "Something might be gaining on you." The Indians take the 1948 pennant, and Paige makes the Hall of Fame in 1971. He dies in 1982.

{ BY ALISON McLEAN }

230 YEARS AGO BRING ON THE FIREWORKS

On July 4, 1776, the Continental Congress votes to adopt the Declaration of Independence. Though it won't be signed for a month, printer John Dunlap starts making copies that night. Twenty-five "Dunlap broadsides" survive; the last one found sold for $8.14 million in 2000.



CLOCKWISE FROM TOP RIGHT: STAPLETON COLLECTIONS / CORBIS; AKG-IMAGES; KEYSTONE / GETTY IMAGES; JOSEPH SOHM / CORBIS; GRANGER COLLECTION, NEW YORK; NASA / AP / WIDE WORLD PHOTOS

When it comes to bad cholesterol–

Ask your doctor if lower is better.

Getting high cholesterol down is important.

Doctors know lowering high cholesterol is important for everyone. But for some people, it's even more important. In fact, a panel of medical experts recently proposed updated guidelines suggesting many patients aim for an even lower cholesterol goal than before.*

Working with your doctor is key to helping you reach your cholesterol goal.

If, after all you've tried—including diet and exercise—your doctor believes you need to get your bad cholesterol even lower, ask whether CRESTOR might help.

Aim lower.

CRESTOR may make the difference you need. In fact, the 10-mg dose of CRESTOR, along with diet, can lower bad cholesterol by as much as 52% (vs 7% with placebo). That means your LDL-C—the bad cholesterol—could go down about half. Your results may vary.

Is CRESTOR right for you?

That's another conversation you need to have with your doctor. Your doctor will decide the best course of treatment for you after assessing your particular needs.

Get more information about CRESTOR.

To learn more about CRESTOR, or if you are without prescription coverage and can't afford your medication, AstraZeneca may be able to help. Call 800-CRESTOR or visit CRESTOR.com.

Here is important safety information about CRESTOR you need to know.

CRESTOR is prescribed along with diet for lowering high cholesterol and has not been determined to prevent heart disease, heart attacks, or strokes. CRESTOR is not right for everyone, including women who are nursing, pregnant, or who may become pregnant, or anyone with liver problems. Your doctor will do blood tests before and during treatment with CRESTOR to monitor your liver function. Unexplained muscle pain and weakness could be a sign of a rare but serious side effect and should be reported to your doctor right away. The 40-mg dose of CRESTOR is only for patients who do not reach goal on 20 mg. Be sure to tell your doctor if you are taking any medications. Side effects occur infrequently and include muscle aches, constipation, weakness, abdominal pain, and nausea. They are usually mild and tend to go away.

If your doctor says, "lower is better," aim lower with CRESTOR.

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rosuvastatin calcium

*Adult Treatment Panel (ATP) III, Update, 2004

Please read the important Product Information about CRESTOR on the adjacent page and discuss it with your doctor.

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Please read this summary carefully and then ask your doctor about CRESTOR. No advertisement can provide all the information needed to determine if a drug is right for you. This advertisement does not take the place of careful discussions with your doctor. Only your doctor has the training to weigh the risks and benefits of a prescription drug.

BRIEF SUMMARY: For full Prescribing Information, see package insert. **INDICATIONS AND USAGE** CRESTOR is indicated: 1. as an adjunct to diet to reduce elevated total-C, LDL-C, ApoB, nonHDL-C, and TG levels and to increase HDL-C in patients with primary hypercholesterolemia (heterozygous familial and nonfamilial) and mixed dyslipidemia (Fredrickson Type IIa and IIb); 2. as an adjunct to diet for the treatment of patients with elevated serum TG levels (Fredrickson Type IV); 3. to reduce LDL-C, total-C, and ApoB in patients with homozygous familial hypercholesterolemia as an adjunct to other lipid-lowering treatments (e.g., LDL apheresis) or if such treatments are unavailable. **CONTRAINDICATIONS** CRESTOR is contraindicated in patients with a known hypersensitivity to any component of this product. Rosuvastatin is contraindicated in patients with active liver disease or with unexplained persistent elevations of serum transaminases (see WARNINGS, Liver Enzymes). **Pregnancy and Lactation** Atherosclerosis is a chronic process and discontinuation of lipid-lowering drugs during pregnancy should have little impact on the outcome of long-term therapy of primary hypercholesterolemia. Cholesterol and other products of cholesterol biosynthesis are essential components for fetal development (including synthesis of steroids and cell membranes). Since HMG-CoA reductase inhibitors decrease cholesterol synthesis and possibly the synthesis of other biologically active substances derived from cholesterol, they may cause fetal harm when administered to pregnant women. Therefore, HMG-CoA reductase inhibitors are contraindicated during pregnancy and in nursing mothers. ROSUVASTATIN SHOULD BE ADMINISTERED TO WOMEN OF CHILDBEARING AGE ONLY WHEN SUCH PATIENTS ARE HIGHLY UNLIKELY TO CONCEIVE AND HAVE BEEN INFORMED OF THE POTENTIAL HAZARDS. If the patient becomes pregnant while taking this drug, therapy should be discontinued immediately and the patient apprised of the potential hazard to the fetus. **WARNINGS Liver Enzymes** HMG-CoA reductase inhibitors, like some other lipid-lowering therapies, have been associated with biochemical abnormalities of liver function. The incidence of persistent elevations (>3 times the upper limit of normal [ULN] occurring on 2 or more consecutive occasions) in serum transaminases in fixed dose studies was 0.4, 0, 0, and 0.1% in patients who received rosuvastatin 5, 10, 20, and 40 mg, respectively. In most cases, the elevations were transient and resolved or improved on continued therapy or after a brief interruption in therapy. There were two cases of jaundice, for which a relationship to rosuvastatin therapy could not be determined, which resolved after discontinuation of therapy. There were no cases of liver failure or irreversible liver disease in these trials. **It is recommended that liver function tests be performed before and at 12 weeks following both the initiation of therapy and any elevation of dose, and periodically (e.g., semiannually) thereafter.** Liver enzyme changes generally occur in the first 3 months of treatment with rosuvastatin. Patients who develop increased transaminase levels should be monitored until the abnormalities have resolved. Should an increase in ALT or AST of >3 times ULN persist, reduction of dose or withdrawal of rosuvastatin is recommended. Rosuvastatin should be used with caution in patients who consume substantial quantities of alcohol and/or have a history of liver disease (see CLINICAL PHARMACOLOGY, Special Populations, Hepatic Insufficiency). Active liver disease or unexplained persistent transaminase elevations are contraindications to the use of rosuvastatin (see CONTRAINDICATIONS). **Myopathy/Rhabdomyolysis Rare cases of rhabdomyolysis with acute renal failure secondary to myoglobinuria have been reported with rosuvastatin and with other drugs in this class.** Uncomplicated myalgia has been reported in rosuvastatin-treated patients (see ADVERSE REACTIONS). Creatine kinase (CK) elevations (>10 times upper limit of normal) occurred in 0.2% to 0.4% of patients taking rosuvastatin at doses up to 40 mg in clinical studies. Treatment-related myopathy, defined as muscle aches or muscle weakness in conjunction with increases in CK values >10 times upper limit of normal, was reported in up to 0.1% of patients taking rosuvastatin doses of up to 40 mg in clinical studies. In clinical trials, the incidence of myopathy and rhabdomyolysis increased at doses of rosuvastatin above the recommended dosage range (5 to 40 mg). In post-marketing experience, effects on skeletal muscle, e.g. uncomplicated myalgia, myopathy and, rarely, rhabdomyolysis have been reported in patients treated with HMG-CoA reductase inhibitors including rosuvastatin. As with other HMG-CoA reductase inhibitors, reports of rhabdomyolysis with rosuvastatin are rare, but higher at the highest marketed dose (40 mg). Factors that may predispose patients to myopathy with HMG-CoA reductase inhibitors include advanced age (≥65 years), hypothyroidism, and renal insufficiency. Consequently: 1. Rosuvastatin should be prescribed with caution in patients with predisposing factors for myopathy, such as, renal impairment (see DOSAGE AND ADMINISTRATION), advanced age, and inadequately treated hypothyroidism. 2. Patients should be advised to promptly report unexplained muscle pain, tenderness, or weakness, particularly if accompanied by malaise or fever. Rosuvastatin therapy should be discontinued if markedly elevated CK levels occur or myopathy is diagnosed or suspected. 3. The 40 mg dose of rosuvastatin is reserved only for those patients who have not achieved their LDL-C goal utilizing the 20 mg dose of rosuvastatin once daily (see DOSAGE AND ADMINISTRATION). 4. The risk of myopathy during treatment with rosuvastatin may be increased with concurrent administration of other lipid-lowering therapies or cyclosporine, (see CLINICAL PHARMACOLOGY, Drug Interactions, PRECAUTIONS, Drug Interactions, and DOSAGE AND ADMINISTRATION). **The benefit of further alterations in lipid levels by the combined use of rosuvastatin with fibrates or niacin should be carefully weighed against the potential risks of this combination. Combination therapy with rosuvastatin and gemfibrozil should generally be avoided. (See DOSAGE AND ADMINISTRATION and PRECAUTIONS, Drug Interactions).** 5. **The risk of myopathy during treatment with rosuvastatin may be increased in circumstances which increase rosuvastatin drug levels (see CLINICAL PHARMACOLOGY, Special Populations, Race and Renal Insufficiency, and PRECAUTIONS, General).** 6. **Rosuvastatin therapy should also be temporarily withheld in any patient with an acute, serious condition suggestive of myopathy or predisposing to the development of renal failure secondary to rhabdomyolysis (e.g., sepsis, hypotension, dehydration, major surgery, trauma, severe metabolic, endocrine, and electrolyte disorders, or uncontrolled seizures).** **PRECAUTIONS General** Before instituting therapy with rosuvastatin, an attempt should be made to control hypercholesterolemia with appropriate diet and exercise, weight reduction in obese patients, and treatment of underlying medical problems (see INDICATIONS AND USAGE). Administration of rosuvastatin 20 mg to patients with severe renal impairment (CL_{cr} <30 mL/min/1.73 m^2) resulted in a 3-fold increase in plasma concentrations of rosuvastatin compared with healthy volunteers (see WARNINGS, Myopathy/Rhabdomyolysis and DOSAGE AND ADMINISTRATION). The result of a large pharmacokinetic study conducted in the US demonstrated an approximate 2-fold elevation in median exposure in Asian subjects (having either Filipino, Chinese, Japanese, Korean, Vietnamese or Asian-Indian origin) compared with a Caucasian control group. This increase should be considered when making rosuvastatin dosing decisions for Asian patients. (See WARNINGS, Myopathy/Rhabdomyolysis; CLINICAL PHARMACOLOGY, Special Populations, Race, and DOSAGE AND ADMINISTRATION.) **Information for Patients** Patients should be advised to report promptly unexplained muscle pain, tenderness, or weakness, particularly if accompanied by malaise or fever. When taking rosuvastatin with an aluminum and magnesium hydroxide combination antacid, the antacid should be taken at least 2 hours after rosuvastatin administration (see CLINICAL PHARMACOLOGY, Drug Interactions). **Laboratory Tests** In the rosuvastatin clinical trial program, dipstick-positive proteinuria and microscopic hematuria were observed among rosuvastatin-treated patients, predominantly in patients dosed above the recommended dose range (i.e., 80 mg). However, this finding was more frequent in patients taking rosuvastatin 40 mg, when compared to lower doses of rosuvastatin or comparator statins, though it was generally transient and was not associated with worsening renal function. Although the clinical significance of this finding is unknown, a dose reduction should be considered for patients on rosuvastatin 40 mg therapy with unexplained persistent proteinuria during routine urinalysis testing. **Drug Interactions Cyclosporine:** When rosuvastatin 10 mg was coadministered with cyclosporine in cardiac transplant patients, rosuvastatin mean C_{max} and mean AUC were increased 11-fold and 7-fold, respectively, compared with healthy volunteers. These increases are considered to be clinically significant and require special consideration in the dosing of rosuvastatin to patients taking concomitant cyclosporine (see WARNINGS, Myopathy/Rhabdomyolysis, and DOSAGE AND ADMINISTRATION). **Warfarin:** Coadministration of rosuvastatin to patients on stable warfarin therapy resulted in clinically significant rises in INR (>4, baseline 2-3). In patients taking coumarin anticoagulants and rosuvastatin concomitantly, INR should be determined before starting rosuvastatin and frequently enough during early therapy to ensure that no significant alteration of INR occurs. Once a stable INR time has been documented, INR can be monitored at the intervals usually recommended for patients on coumarin anticoagulants. If the dose of rosuvastatin is changed, the same procedure should be repeated. Rosuvastatin therapy has not been associated with bleeding or with changes in INR in patients not taking anticoagulants. **Gemfibrozil:** Coadministration of a single rosuvastatin dose to healthy volunteers on gemfibrozil (600 mg twice daily) resulted in a 2.2- and 1.9-fold, respectively, increase in mean C_{max} and mean AUC of rosuvastatin (see DOSAGE AND ADMINISTRATION). **Endocrine Function** Although clinical studies have shown that rosuvastatin alone does not reduce basal plasma cortisol concentration or impair adrenal reserve, caution should be exercised if any HMG-CoA reductase inhibitor or other agent used to lower cholesterol levels is administered concomitantly with drugs that may decrease the levels or activity of endogenous steroid hormones such as ketoconazole, spironolactone, and cimetidine. **CNS Toxicity** CNS vascular lesions, characterized by perivascular hemorrhages, edema, and mononuclear cell infiltration of perivascular spaces, have been observed in dogs treated with several other members of this drug class. A chemically similar drug in this class produced dose-dependent optic nerve degeneration (Wallerian degeneration of retinogeniculate fibers) in dogs, at a dose that produced plasma drug levels about 30 times higher than the mean drug level in humans taking the highest recommended dose. Edema, hemorrhage, and partial necrosis in the interstitium of the choroid plexus was observed in a female dog sacrificed moribund at day 24 at 90 mg/kg/day by oral gavage (systemic exposures 100 times the human exposure at 40 mg/day based on AUC comparisons). Corneal opacity was seen in dogs treated for 52 weeks at 6 mg/kg/day by oral gavage (systemic exposures 20 times the human exposure at 40 mg/day based on AUC comparisons). Cataracts were seen in dogs treated for 12 weeks by oral gavage at 30 mg/kg/day (systemic exposures 60 times the human exposure at 40 mg/day based on AUC comparisons). Retinal dysplasia and retinal loss were seen in dogs treated for 4 weeks by oral gavage at 90 mg/kg/day (systemic exposures 100 times the human exposure at 40 mg/day based on AUC). Doses ≤30 mg/kg/day (systemic exposures ≤60 times the human exposure at 40 mg/day based on AUC comparisons) following treatment up to one year, did not reveal retinal findings. **Carcinogenesis, Mutagenesis, Impairment of Fertility** In a 104-week carcinogenicity study in rats at dose levels of 2, 20, 60, or 80 mg/kg/day by oral gavage, the incidence of uterine stromal polyps was significantly increased in females at 80 mg/kg/day at

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systemic exposure 20 times the human exposure at 40 mg/day based on AUC. Increased incidence of polyps was not seen at lower doses. In a 107-week carcinogenicity study in mice given 10, 60, 200 mg/kg/day by oral gavage, an increased incidence of hepatocellular adenoma/carcinoma was observed at 200 mg/kg/day at systemic exposures 20 times human exposure at 40 mg/day based on AUC. An increased incidence of hepatocellular tumors was not seen at lower doses. Rosuvastatin was not mutagenic or clastogenic with or without metabolic activation in the Ames test with *Salmonella typhimurium* and *Escherichia coli*, the mouse lymphoma assay, and the chromosomal aberration assay in Chinese hamster lung cells. Rosuvastatin was negative in the *in vivo* mouse micronucleus test. In rat fertility studies with oral gavage doses of 5, 15, 50 mg/kg/day, males were treated for 9 weeks prior to and throughout mating and females were treated 2 weeks prior to mating and throughout mating until gestation day 7. No adverse effect on fertility was observed at 50 mg/kg/day (systemic exposures up to 10 times human exposure at 40 mg/day based on AUC comparisons). In testicles of dogs treated with rosuvastatin at 30 mg/kg/day for one month, spermatidic giant cells were seen. Spermatidic giant cells were observed in monkeys after 6-month treatment at 30 mg/kg/day in addition to vacuolation of seminiferous tubular epithelium. Exposures in the dog were 20 times and in the monkey 10 times human exposure at 40 mg/day based on body surface area comparisons. Similar findings have been seen with other drugs in this class. **Pregnancy** ***Pregnancy Category X*** See CONTRAINDICATIONS. Rosuvastatin may cause fetal harm when administered to a pregnant woman. Rosuvastatin is contraindicated in women who are or may become pregnant. Safety in pregnant women has not been established. There are no adequate and well-controlled studies of rosuvastatin in pregnant women. Rosuvastatin crosses the placenta and is found in fetal tissue and amniotic fluid at 3% and 20%, respectively, of the maternal plasma concentration following a single 25 mg/kg oral gavage dose on gestation day 16 in rats. A higher fetal tissue distribution (25% maternal plasma concentration) was observed in rabbits after a single oral gavage dose of 1 mg/kg on gestation day 18. If this drug is administered to a woman with reproductive potential, the patient should be apprised of the potential hazard to a fetus. In female rats given oral gavage doses of 5, 15, 50 mg/kg/day rosuvastatin before mating and continuing through day 7 postcoitus results in decreased fetal body weight (female pups) and delayed ossification at the high dose (systemic exposures 10 times human exposure at 40 mg/day based on AUC comparisons). In pregnant rats given oral gavage doses of 2, 20, 50 mg/kg/day from gestation day 7 through lactation day 21 (weaning), decreased pup survival occurred in groups given 50 mg/kg/day, systemic exposures ≥12 times human exposure at 40 mg/day based on body surface area comparisons. In pregnant rabbits given oral gavage doses of 0.3, 1, 3 mg/kg/day from gestation day 6 to lactation day 18 (weaning), exposures equivalent to human exposure at 40 mg/day based on body surface area comparisons, decreased fetal viability and maternal mortality was observed. Rosuvastatin was not teratogenic in rats at ≤25 mg/kg/day or in rabbits ≤3 mg/kg/day (systemic exposures equivalent to human exposure at 40 mg/day based on AUC or body surface comparison, respectively). **Nursing Mothers** It is not known whether rosuvastatin is excreted in human milk. Studies in lactating rats have demonstrated that rosuvastatin is secreted into breast milk at levels 3 times higher than that obtained in the plasma following oral gavage dosing. Because many drugs are excreted in human milk and because of the potential for serious adverse reactions in nursing infants from rosuvastatin, a decision should be made whether to discontinue nursing or administration of rosuvastatin taking into account the importance of the drug to the lactating woman. **Pediatric Use** The safety and effectiveness in pediatric patients have not been established. Treatment experience with rosuvastatin in a pediatric population is limited to 8 patients with homozygous FH. None of these patients was below 8 years of age. **Geriatric Use** Of the 10,275 patients in clinical studies with rosuvastatin, 3,159 (31%) were 65 years and older, and 698 (6.8%) were 75 years and older. The overall frequency of adverse events and types of adverse events were similar in patients above and below 65 years of age. (See WARNINGS, Myopathy/Rhabdomyolysis.) The efficacy of rosuvastatin in the geriatric population (≥65 years of age) was comparable to the efficacy observed in the non-elderly. **ADVERSE REACTIONS** Rosuvastatin is generally well tolerated. Adverse reactions have usually been mild and transient. In clinical studies of 10,275 patients, 3.7% were discontinued due to adverse experiences attributable to rosuvastatin. The most frequent adverse events thought to be related to rosuvastatin were myalgia, constipation, asthenia, abdominal pain, and nausea. **Clinical Adverse Experiences** Adverse experiences, regardless of causality assessment, reported in ≥2% of patients in placebo-controlled clinical studies of rosuvastatin are shown in Table 1; discontinuations due to adverse events in these studies of up to 12 weeks duration occurred in 3% of patients on rosuvastatin and 5% on placebo.

Table 1. Adverse Events in Placebo-Controlled Studies

Adverse event	Rosuvastatin N=744	Placebo N=382
Pharyngitis	9.0	7.6
Headache	5.5	5.0
Diarrhea	3.4	2.9
Dyspepsia	3.4	3.1
Nausea	3.4	3.1
Myalgia	2.8	1.3
Asthenia	2.7	2.6
Back pain	2.6	2.4
Flu syndrome	2.3	1.8
Urinary tract infection	2.3	1.6
Rhinitis	2.2	2.1
Sinusitis	2.0	1.8

In addition, the following adverse events were reported, regardless of causality assessment, in ≥1% of 10,275 patients treated with rosuvastatin in clinical studies. The events in *italics* occurred in ≥2% of these patients. **Body as a Whole:** *Abdominal pain, accidental injury, chest pain, infection, pain,* pelvic pain, and neck pain. **Cardiovascular System:** *Hypertension,* angina pectoris, vasodilatation, and palpitation. **Digestive System:** *Constipation, gastroenteritis,* vomiting, flatulence, periodontal abscess, and gastritis. **Endocrine:** Diabetes mellitus. **Hemic and Lymphatic System:** Anemia and ecchymosis. **Metabolic and Nutritional Disorders:** *Peripheral edema.* **Musculoskeletal System:** *Arthritis, arthralgia,* and pathological fracture. **Nervous System:** *Dizziness, insomnia, hypertonia, paresthesia, depression,* anxiety, vertigo, and neuralgia. **Respiratory System:** *Bronchitis, cough increased,* dyspnea, pneumonia, and asthma. **Skin and Appendages:** *Rash* and pruritus. **Laboratory Abnormalities:** In the rosuvastatin clinical trial program, dipstick-positive proteinuria and microscopic hematuria were observed among rosuvastatin-treated patients, predominantly in patients dosed above the recommended dose range (i.e., 80 mg). However, this finding was more frequent in patients taking rosuvastatin 40 mg, when compared to lower doses of rosuvastatin or comparator statins, though it was generally transient and was not associated with worsening renal function. (See PRECAUTIONS, Laboratory Tests.) Other abnormal laboratory values reported were elevated creatinine phosphokinase, transaminases, hyperglycemia, glutamyl transpeptidase, alkaline phosphatase, bilirubin, and thyroid function abnormalities. Other adverse events reported less frequently than 1% in the rosuvastatin clinical study program, regardless of causality assessment, included arrhythmia, hepatitis, hypersensitivity reactions (i.e., face edema, thrombocytopenia, leukopenia, vesiculobullous rash, urticaria, and angioedema), kidney failure, syncope, myasthenia, myositis, pancreatitis, photosensitivity reaction, myopathy, and rhabdomyolysis. **Postmarketing Experience** In addition to the events reported above, as with other drugs in this class, the following event has been reported during post-marketing experience with CRESTOR, regardless of causality assessment: very rare cases of jaundice. **OVERDOSAGE** There is no specific treatment in the event of overdose. In the event of overdose, the patient should be treated symptomatically and supportive measures instituted as required. Hemodialysis does not significantly enhance clearance of rosuvastatin. **DOSAGE AND ADMINISTRATION** The patient should be placed on a standard cholesterol-lowering diet before receiving CRESTOR and should continue on this diet during treatment. CRESTOR can be administered as a single dose at any time of day, with or without food. **Hypercholesterolemia (Heterozygous Familial and Nonfamilial) and Mixed Dyslipidemia (Fredrickson Type IIa and IIb)** The dose range for CRESTOR is 5 to 40 mg once daily. Therapy with CRESTOR should be individualized according to goal of therapy and response. The usual recommended starting dose of CRESTOR is 10 mg once daily. However, initiation of therapy with 5 mg once daily should be considered for patients requiring less aggressive LDL-C reductions, who have predisposing factors for myopathy, and as noted below for special populations such as patients taking cyclosporine, Asian patients, and patients with severe renal insufficiency (see CLINICAL PHARMACOLOGY, Race, and Renal Insufficiency, and Drug Interactions. For patients with marked hypercho-lesterolemia (LDL-C >190 mg/dL) and aggressive lipid targets, a 20-mg starting dose may be considered. After initiation and/or upon titration of CRESTOR, lipid levels should be analyzed within 2 to 4 weeks and dosage adjusted accordingly. **The 40-mg dose of CRESTOR is reserved only for those patients who have not achieved their LDL-C goal utilizing the 20 mg dose of CRESTOR once daily (see WARNINGS, Myopathy/ Rhabdomyolysis). When initiating statin therapy or switching from another statin therapy, the appropriate CRESTOR starting dose should first be utilized, and only then titrated according to the patient's individualized goal of therapy.** **Homozygous Familial Hypercholesterolemia** The recommended starting dose of CRESTOR is 20 mg once daily in patients with homozygous FH. The maximum recommended daily dose is 40 mg. CRESTOR should be used in these patients as an adjunct to other lipid-lowering treatments (e.g., LDL apheresis) or if such treatments are unavailable. Response to therapy should be estimated from pre-apheresis LDL-C levels. **Dosage in Asian Patients** Initiation of CRESTOR therapy with 5 mg once daily should be considered for Asian patients. The potential for increased systemic exposures relative to Caucasians is relevant when considering escalation of dose in cases where hypercholesterolemia is not adequately controlled at doses of 5, 10, or 20 mg once daily. (See WARNINGS, Myopathy/ Rhabdomyolysis, CLINICAL PHARMACOLOGY, Special Populations, Race, and PRECAUTIONS, General). **Dosage in Patients Taking Cyclosporine** In patients taking cyclosporine, therapy should be limited to CRESTOR 5 mg once daily (see WARNINGS, Myopathy/Rhabdomyolysis, and PRECAUTIONS, Drug Interactions). **Concomitant Lipid-Lowering Therapy** The effect of CRESTOR on LDL-C and total-C may be enhanced when used in combination with a bile acid binding resin. If CRESTOR is used in combination with gemfibrozil, the dose of CRESTOR should be limited to 10 mg once daily (see WARNINGS, Myopathy/Rhabdomyolysis, and PRECAUTIONS, Drug Interactions). **Dosage in Patients With Renal Insufficiency** No modification of dosage is necessary for patients with mild to moderate renal insufficiency. For patients with severe renal impairment (CL_{cr} <30 mL/min/1.73 m^2) not on hemodialysis, dosing of CRESTOR should be started at 5 mg once daily and not to exceed 10 mg once daily (see PRECAUTIONS, General, and CLINICAL PHARMACOLOGY, Special Populations, Renal Insufficiency).

NOTE: This summary provides important information about CRESTOR. For more information, please ask your doctor or health care professional about the full Prescribing Information and discuss it with them.

Rx only

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Manufactured for: AstraZeneca Pharmaceuticals LP
Wilmington, DE 19850
By: IPR Pharmaceuticals, Inc.
Carolina, PR 00984
PCC 630101
30043-00 31028-00
Rev 03/05 228011

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Around the Mall

SCENES AND SIGHTINGS FROM THE SMITHSONIAN MUSEUMS AND BEYOND

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Says the National Zoo's Janine Brown (with Shanthi), "We have to stop importing elephants from Asia

TRUNK SHOWS The world's largest land animals can pose a big challenge for zoos. In light of research showing that elephants are social, intelligent creatures that need companionship and space to roam, the American Zoo and Aquarium Association mandated this May that elephant facilities allot at least 1,800 square feet for a single

BRENDAN SMIALOWSKI

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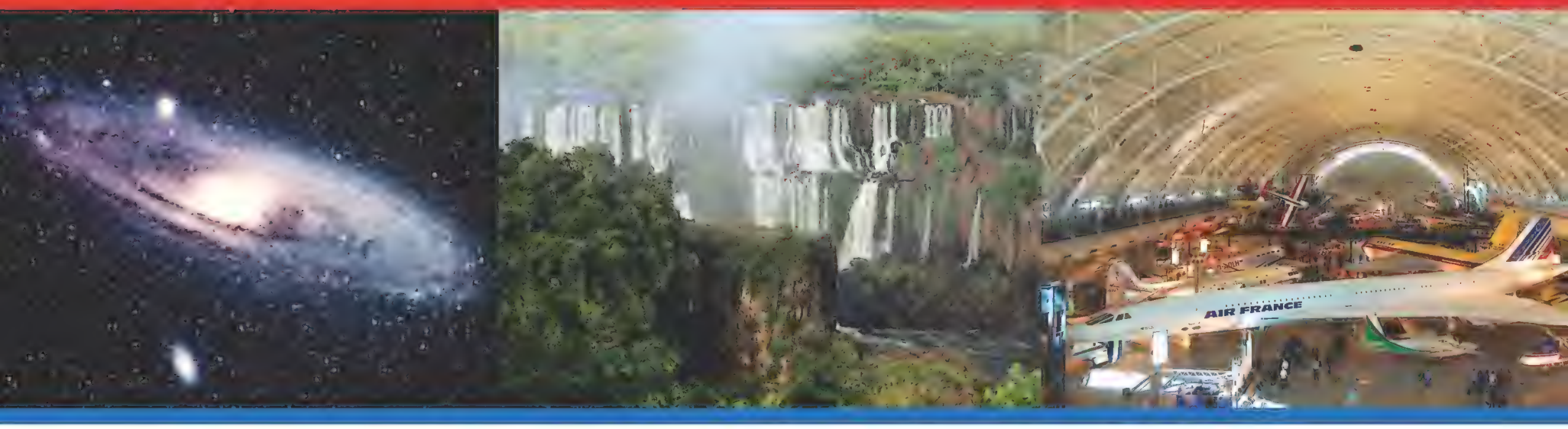

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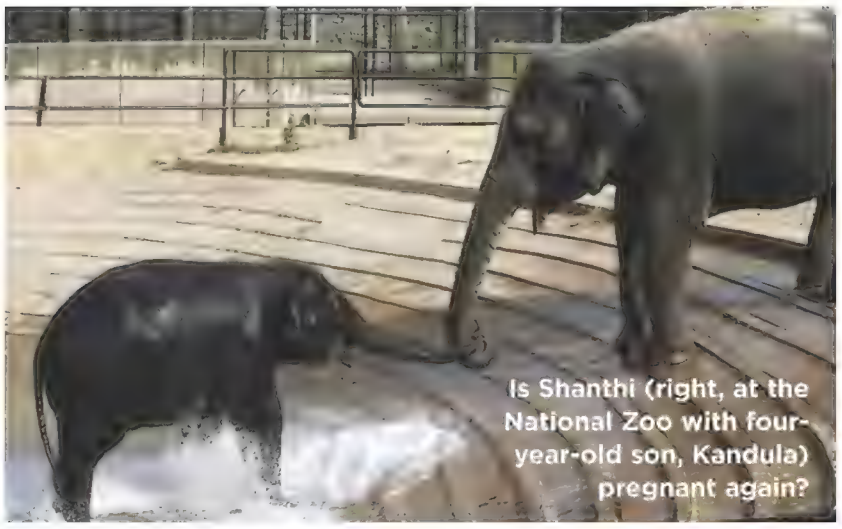


Is Shanthi (right, at the National Zoo with four-year-old son, Kandula) pregnant again?

TRUNK SHOWS

{ CONTINUED FROM PAGE 31 }

elephant outdoors and 900 feet for each additional animal. Also, future exhibits must contain at least three female adults, the number deemed adequate for their social needs. Since 2004, five U.S. zoos have decided to close their elephant houses rather than struggle with the new standards.

For its part, the Smithsonian's National Zoo plans to expand its Asian elephant house starting this year at an estimated cost of $60 million. The new facility will feature more varied terrain—mud wallows, savanna grasses and waterfalls—to stimulate the animals. And the Zoo will increase its elephant population from three animals to a herd of a dozen adults. Spokesperson Peper Long says: "For the 1.8 million people who come to the National Zoo each year, there is no replacement for a living elephant. We want to keep them to inspire people to save them in the wild."

To be sure, some conservationists argue against spending large sums to keep elephants in zoos. "With $60 million you could save entire populations of elephants in Asia and Africa," says Suzanne Roy of In Defense of Animals. "Zoos overestimate the importance of seeing elephants in person. People have been looking at elephants in zoos for 200 years, and the animals have still dwindled to near extinction." Other animal experts say captivity is acceptable but not in cramped urban zoos, which can be harmful to elephants. "With all the space in the United States, I don't see why we can't set up sanctuary-size zoos," says Joyce Poole, an animal behaviorist at the Amboseli Trust for Elephants in Newburyport, Massachusetts. "People would have to travel to see them, but at least they would get to see elephants behaving like elephants."

Partly because of dwindling numbers of wild elephants—it's estimated there are 500,000 African and 35,000 Asian elephants—zoos want to avoid restocking their exhibits from nature. So they are turning to breeding programs. Janine Brown, an animal hormone expert at the National Zoo, says artificial insemination has become the best option because it's portable; zookeepers can avoid inbreeding by trying to impregnate a female at one zoo with semen from an unrelated male at another facility. The technique has met with success. The Zoo's 4-year-old calf, Kandula, was conceived by this means, and zookeepers will discover this month if his mother, Shanthi, is pregnant again.

"It's the type of species that demands a lot of resources," says Long. "But they will die out if we don't do something to save them."

{ BY JENNIFER DRAPKIN }

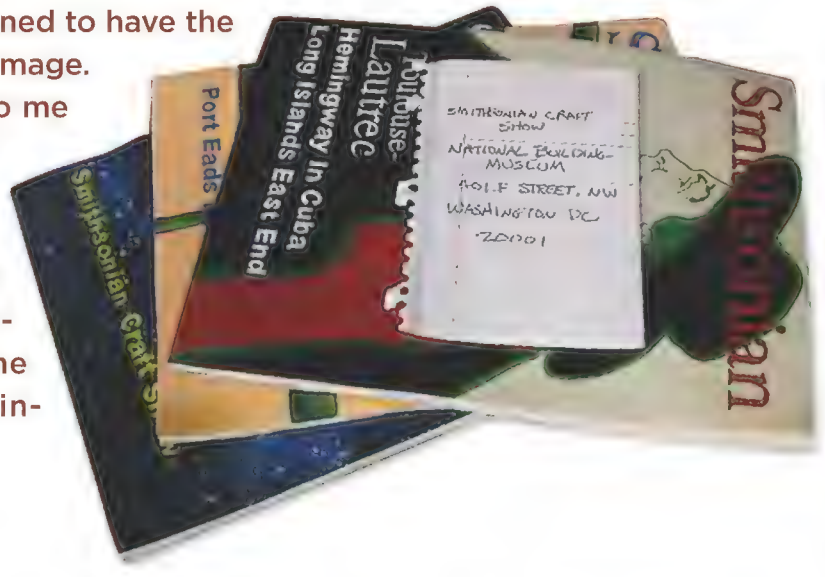
The Art of Flattery

Randall Rosenthal was once a darling of the New York City art scene. In 1974, his one-man show of surrealist paintings attracted Andy Warhol and charmed Salvador Dali, who wrote in the gallery guestbook, "BRAVO." So what did Rosenthal do when fame and fortune knocked at his door? He moved to the West Coast and spent the next several years skiing, surfing and snowboarding.

Now the 58-year-old Rosenthal is back, having reinvented himself as a sculptor. We found him this past April at the annual Smithsonian Craft Show in Washington, D.C. One of his pieces in the juried exhibition was a stack of SMITHSONIAN issues. Or was it? Closer inspection reveals it's a cunning sculpture, the "covers" carved from a single block of wood and painted by hand. Was he pandering to the judges? "No," says Rosenthal, a longtime subscriber, who lives in East Hampton, New York. "I happened to have the issue and liked the image. It never occurred to me that I could win."

As we've always said, it pays to subscribe to SMITHSONIAN: Rosenthal's work took the exhibition's best-in-show award.

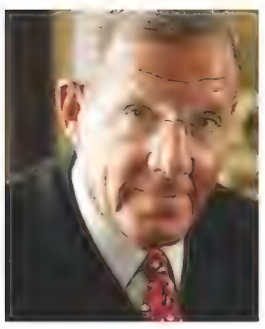
{ BY CHAI WOODHAM }



JIM BOURG / REUTERS; CAREN ROSENTHAL; RANDALL ROSENTHAL

FROM THE SECRETARY | Patent Pending

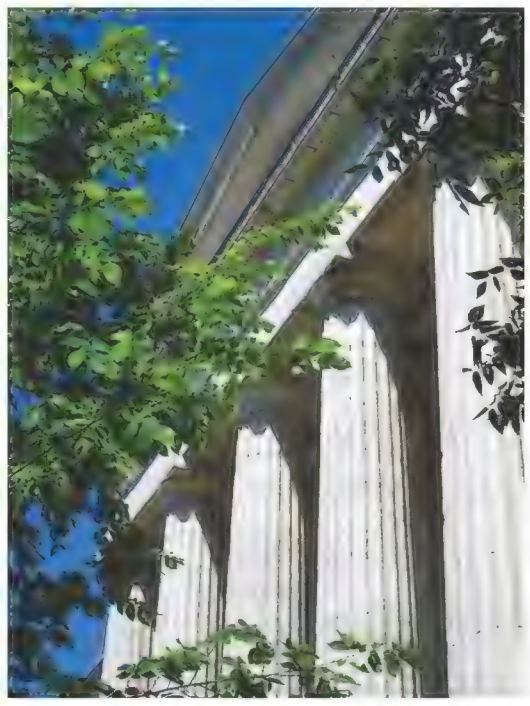
After a glorious renovation, the old Patent Office Building opens its doors anew



AWESOME AS Washington's Independence Day fireworks are, this year they'll have been upstaged a bit by a historic event three days earlier. On July 1, after being closed for more than six years and a $283 million renovation, the magnificent old Patent Office Building—in one of the capital city's most happening neighborhoods—will reopen, as will the two Smithsonian museums housed there, the National Portrait Gallery (NPG) and the Smithsonian American Art Museum (SAAM).

This is a truly grand reopening, especially considering the near loss of the building and of a painting that is a national treasure. Only a presidential order in 1955 spared the edifice from being torn down to make room for a parking lot. Six years ago the Smithsonian received the devastating news that the owner of a life-size painting (known as the Lansdowne portrait) of George Washington wanted to end its long-term loan to the NPG and put the painting up for auction.

But opportunity, entrepreneurial drive and public-minded generosity came to the rescue. The fortuitous story began in Oklahoma City, when in 1916 at age 10, Donald W. Reynolds started hawking newspapers in a railroad depot. In high school he took a job at a meatpacking plant so he could study journalism, and after graduating from college, he saved to buy his own newspaper. He parlayed that purchase into a hugely successful media company and then established the Donald W. Reynolds Foundation.



Agleam inside and out, America's "Temple of Invention" awaits visitors in one of Washington's liveliest areas.

Soon after hearing about the potential loss of the Lansdowne portrait, the foundation donated $30 million to purchase, tour and display it. For such a generous gift alone, our nation would have been forever grateful. But the foundation was just getting started. Recognizing the importance of the old Patent Office Building and its perfect role as the home for SAAM and the NPG, it also gave $45 million to supplement other donations and some $166 million raised from Americans nationwide—in the form of a major appropriation from Congress—to help complete the renovation. Together, SAAM and the NPG will be known as the Donald W. Reynolds Center for American Art and Portraiture. As you can read further in this issue ("Back to the Future," p. 40), the Patent Office Building has a rich past. It is one of the oldest structures in Washington.

Thanks to a gift from the Lunder Foundation, the NPG and SAAM will feature a unique conservation facility with floor-to-ceiling glass walls, allowing visitors to view conservators at work. And the Henry Luce Foundation has enabled SAAM to include an art storage and study center; more than 3,300 long-hidden treasures will be on view. Also new will be the Archives of American Art's Lawrence A. Fleischman Gallery; "Artists in their Studios" will be that gallery's premier exhibition. SAAM visitors will now be able to see nearly five times the number of artworks previously on display, and the renovations will also dramatically increase the NPG's ability to exhibit more of its 20,000 portraits—of all kinds of people who have shaped American history. You can read more about these new facilities and exhibitions in "Speaking of Art" (p. 48).

The Reynolds Center is located in Penn Quarter, a bustling area on the edge of Chinatown. SAAM's and the NPG's hours will be 11:30 a.m. to 7:00 p.m., and a state-of-the-art auditorium, a gift from Nan Tucker McEvoy, will be used for public programs and performances. Next year, a radiant glass-and-steel canopy will cover the Patent Office Building's spacious new courtyard, to be named after its benefactors, Robert and Arlene Kogod. But this year's fireworks—here and around the country—will in part already salute those first railroad depot newspaper sales, the endeavors that made the other donations possible, and ourselves as taxpayers, joining together for the common good.

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THE OBJECT AT HAND | Camel skeleton

NATIONAL MUSEUM OF NATURAL HISTORY

CAMELOT

In the mid-1800s, "ships of the desert" reported for duty in the Southwest

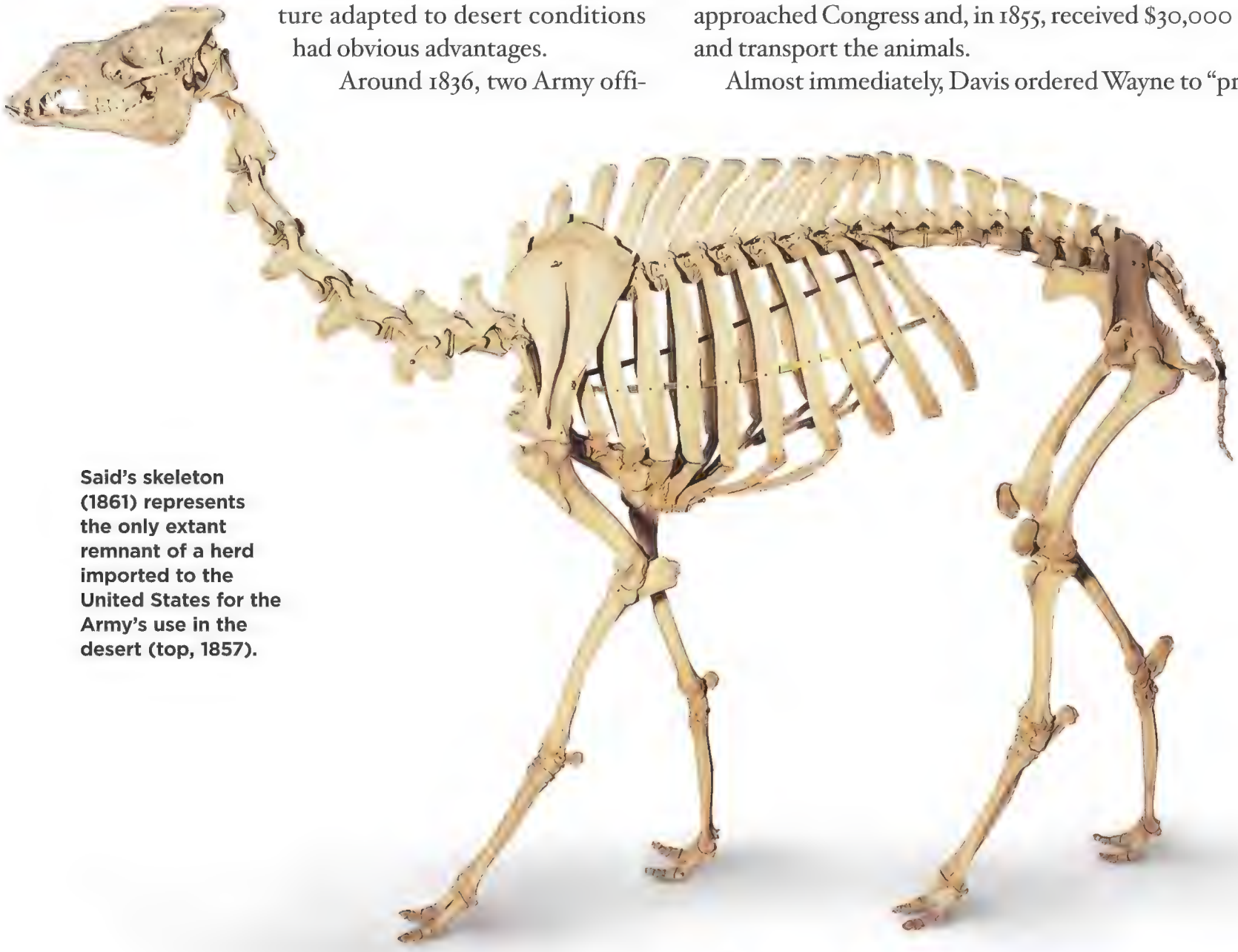
BY OWEN EDWARDS

THE CAMEL'S NAME was Said. His destiny was to travel from the deserts of the Middle East to the American Southwest, where he would participate in a short-lived, 19th-century military experiment that came to be known as the U.S. Army Camel Corps. His fate was to be killed in 1861 by a camel known as "Old Touli," in a corral in Los Angeles, and to end up—his skeleton, anyway—in the National Museum of Natural History's Hall of Bones. Within months of Said's demise, Sylvester Mowry, a former artillery officer, had donated his remains. But that's the end of a story with a curious beginning.

The use of camels as cavalry pack animals in the harsh terrain of the Southwest must have seemed like a good idea at the time. For troopers who served there, the care and feeding of horses, mules and oxen posed many challenges, not the least of which was a constant need to find water for them. A creature adapted to desert conditions had obvious advantages.

Around 1836, two Army officers, Maj. George H. Crosman and Maj. Henry C. Wayne, began suggesting to the War Department that camels be brought from the Middle East and tested in the field. Meeting with little enthusiasm, the officers then lobbied Congress and found a champion for the idea in Jefferson Davis, than a senator from Mississippi. The plan languished, however, until 1853 when Davis—later, of course, president of the Confederacy—became Secretary of War. Stating that "the camel, it is believed, would remove an obstacle which now serves greatly to diminish the value and efficiency of our troops on the western frontier," Davis approached Congress and, in 1855, received $30,000 to buy and transport the animals.

Almost immediately, Davis ordered Wayne to "proceed



Said's skeleton (1861) represents the only extant remnant of a herd imported to the United States for the Army's use in the desert (top, 1857).

MPI / GETTY IMAGES; TOM WOLFF

Visit Smithsonian.com to learn more about the Camel Corps.

without delay to the Levant." He and his team headed to Tunis, where he bought one camel and got two more as gifts. Wayne loaded them on a U.S. ship, then headed for Malta, Smyrna, Salonica, Istanbul and Alexandria. Because the British were using thousands of camels in their Crimean campaign, and Egypt had a ban on exporting the "ships of the desert," Wayne's ultimate acquisition of 33 camels required diplomacy as well as cash. No sooner had Wayne's ship docked in Indianola, Texas, than a delighted Secretary Davis sent it back for more.

Wayne remained with his herd of 33, traveling first to San Antonio and then to Val Verde, 60 miles away, where he set up camp. On an expedition to establish a new route from New Mexico to California, the camels validated the faith of their backers. Though soldiers and civilians alike complained about the creatures' foul odor and groaning brays, the beasts carried loads of more than 600 pounds, needed little water and devoured brush that horses and mules wouldn't touch. "What are these camels the representation of?" one expedition member mused. "Not a high civilization exactly, but of the 'go-aheadness' of the American character, which subdues even nature by its energy and perseverance."

Yet a Camel Corps was not to be. Art Bergeron, a historian at the U.S. Army Military History Institute in Carlisle, Pennsylvania, believes the project wasn't given sufficient time to succeed. Then too, he adds, "the Civil War came along at just the wrong time." Once it began, Camp Verde in Texas became a Confederate outpost, and as soldiers turned away from fighting Indians on the frontier, they neglected the camels. After the war, the Camel Corps was dispersed; some of the animals were sold to circuses, others set loose in the desert. For years, travelers in the Southwest told tales of camels looming up in the flickering light of campfires.

OWEN EDWARDS *is executive editor of* Edutopia, *a magazine about education.*

BRAD BARKET / GETTY IMAGES; ERIC LONG / NATIONAL AIR AND SPACE MUSEUM, S.I.

Q&A

The Muppets are 50. The American History Museum will exhibit Jim Henson's first puppets and such classics as Kermit the Frog. **CHERYL HENSON**, Henson's daughter and a muppet designer, spoke with SMITHSONIAN's Jennifer Drapkin.

DO YOU REMEMBER THE FIRST TIME YOU FELL IN LOVE WITH A PUPPET?
It was Robin, Kermit's nephew in "The Frog Prince." I was 10 years old, and my dad had been Kermit for quite some time. Robin was such a tiny frog, and the idea of a child-size version of Kermit pulled on my heartstrings. "The Frog Prince" is particularly sweet, and it was the first of my dad's shows I really related to. His early work was more for adults until he started doing Muppet versions of fairy tales.

DID YOU GROW UP MAKING PUPPETS? Oh, yes. I made my first puppets for the first season of "The Muppet Show." They were singing fruits and vegetables—an artichoke, a bunch of asparagus and a grapefruit—for the fruit and vegetable stand that sang, "Yes, we have no bananas." My older sister, Lisa, made a tomato. My father worked with his kids a lot, throwing around ideas for stories and characters. I had a wonderful exposure to his creative life.

DO YOU EVER FEEL THAT PUPPETEERS ARE MISUNDERSTOOD? There is a tendency for people to look at puppetry as a metaphor for manipulation, for taking away someone's will or autonomy. The idea of a puppeteer as a devil character, sapping energy. That's a literary metaphor, but what happens in puppetry is that the puppet has no life and the puppeteer gives it to him. It is a fundamentally generous act. I believe most puppeteers are fundamentally generous people. They put a living soul into an inanimate object. There is a great love between the puppeteer and the puppet. It's not romantic love, but there's a real affinity.

Visit Smithsonian.com for more of the Q&A with Cheryl Henson.

Who's Counting?

115 rockets, from an 1870s gunpowder-fueled whaling harpoon to a handy weather probe to a 363-foot Saturn V, are in the National Air and Space Museum's collection.

What's Up

TRIPPY FLOORS Step into the groove of a "Zobop" floor, made out of psychedelic vinyl tape by the Scottish artist, DJ and musician Jim Lambie. The Hirshhorn Museum's lobby will resonate with visitors until October 2.

IN LIVING CULTURE

Native basket weavers make new art (a Navajo basket from Utah) from ancient stories, songs, ceremonies and techniques at the Folklife Festival on the National Mall June 30-July 4 and July 6-July 11.

SAVING FACES

U.S. explorers Janet and Frederick Wulsin, trekking in remote China in 1923, photographed—and hand tinted—a vanishing way of life (a bride with family). At the Natural History Museum through September.

THE BOLD AND THE BEAUTIFUL

William H. Johnson portrayed the Harlem Renaissance with bright, graphic flair. More than 40 of his prints sing at the American Art Museum through January 7.

IN THE PILOT'S SEAT

Eric Long and Mark Avino's huge 4′ x 7′ photographs give an insider look at cockpits (*The Spirit of St. Louis*, left), putting you at the controls. Jetting around the country this year. Next stop: Spencer, NC.

{ BY ALISON MCLEAN AND JENNIFER DRAPKIN }

PUPS FIND HOME

The National Zoo welcomes two orphaned sea lions from California. The female pups, Summer and Calli, are too attached to humans to return to the wild.

CLOCKWISE FROM TOP LEFT: CHRIS SMITH / HIRSHHORN MUSEUM, S.I.; FREDERICK WULSIN PHOTOGRAPHIC COLLECTION / PEABODY MUSEUM OF ARCHAEOLOGY AND ETHNOLOGY, HARVARD UNIVERSITY; WILLIAM JOHNSON, *BLIND SINGER*, CA. 1939-40 / SMITHSONIAN AMERICAN ART MUSEUM; JESSIE COHEN / NATIONAL ZOOLOGICAL PARK, S.I.; NATIONAL AIR AND SPACE MUSEUM, S.I.; PEARL YEE WONG / MICHIGAN STATE UNIVERSITY MUSEUM

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{ JULY 2006 · VOLUME 37, NUMBER 4 }

GRAND REOPENING

BACK TO THE FUTURE

One of Washington's most exuberant monuments—the old Patent Office Building—gets the renovation it deserves

BY ADAM GOODHEART

Revelers stream past the Patent Office during President Benjamin Harrison's 1889 inauguration. After a $283 million renovation the building is reborn as the Donald W. Reynolds Center for American Art and Portraiture. It will house the National Portrait Gallery and the Smithsonian American Art Museum.

W. 7th
7 ST. W.

On a recent afternoon in early spring, the old Patent Office Building in Washington, D.C. hosted a most distinguished reunion of American luminaries. Pocahontas leaned casually against one wall, resplendent in her lace collar and broad-brimmed hat. Nearby, a debonair Thomas Jefferson arched his eyebrows at the Mohawk chief Joseph Brant, while Sojourner Truth and Cinque, the *Amistad* rebel, conspired in the corner of the next room. Just upstairs, Zelda and F. Scott Fitzgerald cast languid glances toward Theodore Roosevelt, who scowled manfully in disdain.

Amid the estimable guests at this all-star cocktail party, construction crews and museum workers bustled about, putting the finishing touches on a project that had cost $283 million and lasted more than six years. After a meticulous, top-to-bottom renovation, the old Patent Office Building—newly rechristened the Donald W. Reynolds Center for American Art and Portraiture—was nearly ready to reopen.

Pocahontas, Jefferson and the others were not present in flesh and blood, of course, but rather on painted canvases, lithographs and framed photos, many of them propped against the wall as they awaited rehanging after their long absence. The works form part of the permanent collection of the Smithsonian's National Portrait Gallery (NPG), which, together with the Smithsonian American Art Museum (SAAM), will return to its longtime home when the Reynolds Center officially opens on July 1.

It was oddly appropriate that the halls of this grand old building seemed thickly clustered with famous American ghosts. Over its life span of nearly two centuries, its stately porticoes have witnessed more history—wars, fires, inaugural balls, political scandals—than almost any other structure in the capital, and its marble corridors have felt the footsteps of memorable characters, including more than a few whose likenesses are enshrined there today.

Indeed, the two museums' most cherished historical and cultural treasure may well be the Patent Office Building itself. Although not the most famous monument in Washington, it is among the city's most eloquent. Begun in 1836, this Temple of Invention serves—now as then—as a place where citizens of the world can come and stand face to face with the proudest achievements of America's democratic culture. "This was always a showplace, a building that the government and the people saw as a symbol of American greatness," says SAAM director Elizabeth Broun.

This greatness was embodied not just in the Patent Office Building's contents—which have ranged over the years from Benjamin Franklin's printing press to Andy Warhol's silk screens—but by the building's architecture. In a manner more like a great European cathedral than most other American monuments, the Patent Office Building is the handiwork not of a single designer but of numerous architects and artisans—working across decades and even centuries. And each generation, from the early Republic through the Victorian era to the present, has, in a sense, reinvented the building afresh. "At every stage of its development, this was intended to be a building of the future," says NPG director Marc Pachter. "It was meant to be organic, optimistic, exuberant."

To be sure, the building has seen more than its share of difficulty and danger as well. Certain chapters of its history seem to exemplify the very worst aspects of Washington politics, as well as the hazards that visionary geniuses face when they work within a democratic culture. Yet the exuberant energy that Pachter describes was still evident on a recent visit, as workers hurried to touch up plasterwork, reset stone floors and install light fixtures in the gleaming new galleries. Crews of several hundred had been working almost round-the-clock for months.

Robert Mills (above, left) was the Patent Office's first architect and guiding spirit. Fired in 1851, Mills was succeeded by Thomas U. Walter (center), who oversaw construction of the building until 1865 (seen here in 1868, opposite). Adolf Cluss (right) restored the Patent Office after a fire in 1877.

"Each layer of the building tells part of its story," says Mary Katherine Lanzillotta, a supervising architect of the Hartman-Cox firm. She has come to know the structure intimately since she began working on plans for its renovation more than a decade ago. The process has—fittingly enough—brought the grand old building back in some respects to its beginnings, and to a destiny shaped when the country was still young.

ADAM GOODHEART *who last wrote about John Paul Jones for* SMITHSONIAN, *is the C.V. Starr Scholar at Washington College.*

JESSE H. WHITEHURST / NATIONAL PORTRAIT GALLERY, SMITHSONIAN INSTITUTION; NATIONAL PORTRAIT GALLERY, S.I.; WILLIAM SHACKLETTE COLLECTION, CASTLE COLLECTION, S.I.; P. 40 EDWARD SACHSE AND COMPANY / NATIONAL PORTRAIT GALLERY, S.I.; P. 40, 41 KILBURN BROTHERS / LIBRARY OF CONGRESS; P. 43 LIBRARY OF CONGRESS

IN PIERRE CHARLES L'ENFANT'S famous 1792 plan of Washington, three salient points immediately attract the eye. One is the Capitol, radiating a sunburst of diagonal avenues. The second is the "President's House" and its grassy Ellipse. And the third is a projected building that stands directly between them, like the keystone in an arch, straddling Eighth Street Northwest between F and G streets, at the heart of what is now the capital city's downtown.

"Any other society would have known just what to do with this third point: they would have built a cathedral or a temple or a mosque," Pachter says. "Originally, L'Enfant proposed a nondenominational 'church of the republic,' an idea that was later modified into a pantheon of republican heroes, which would be the spiritual anchor of a secular state."

However, in the "City of Magnificent Intentions"—as Charles Dickens notoriously termed 19th-century Washington—that pantheon of heroes, like many other good ideas, never became a physical reality. (At least not until 1968, when the National Portrait Gallery first opened its doors.)

Civil War soldiers bunked beside patent model cases. The building later became a hospital, where a patient scratched his initials in 1864 (inset).

Instead, the Eighth Street site remained another open space in a city of muddy avenues, squalid markets, noisome swamps. But then, in the 1830s, the Jacksonian Revolution began to remake the country—and with it the capital. For the first time in several decades, an ambitious federal building program was launched.

On the site of L'Enfant's proposed pantheon, the president and Congress determined to put a new Patent Office—a choice that might at first seem like a typically Washingtonian triumph of bureaucracy over poetry. Quite the contrary, however: the Patent Office would itself be the pantheon, albeit in the practical, hardheaded spirit of its age. As a showcase of American genius, it would extol the inventive, democratic, entrepreneurial energy of the Republic—itself still a new and not-quite-proven invention. The U.S. patent law then required inventors to submit scale models of their creations, which would be put on public display. "In this country, there were so few engineers and trained technicians that people needed models to refer to," says Charles J. Robertson, author of *Temple of Invention*, a new history of the Patent Office.

In the words of Congress, the structure would house a "national museum of the arts"—technology included—and "a general repository of all the inventions and improvements in machinery and manufactures, of which our country can claim the honor." A bill authorizing its construction passed on July 4, 1836—the 60th anniversary of American independence.

THE MAN WHOM Andrew Jackson appointed as architect embodied many of the project's highest aspirations. A South Carolinian, Robert Mills had studied architecture at the elbow of no less than Thomas Jefferson, and styled himself the first professionally trained architect born in the United States. Mills was a prolific inventor and dreamer in the Jeffersonian mold, whose schemes—both realized and unrealized—included the Washington Monument, the nation's first elevated railroad, a canal system linking the Atlantic to the Pacific, and a plan to free the slaves in his native state and resettle them in Africa.

Mills was also a zealous patriot who found in architecture his own version of Manifest Destiny. "We have entered a new era in the history of the world," he exhorted his countrymen. "It is our destiny to lead, not to be led." He set about the Patent Office commission with characteristic zeal, and soon a Grecian temple was rising amid Eighth Street's boardinghouses and vegetable stands.

Indeed, Mills described the proportions of the main portico as "exactly those of the Parthenon of Athens." This was a highly symbolic choice. Public buildings previously constructed in Washington—particularly the Capitol—largely followed Roman models, evoking the oligarchic republic of Cato and Cicero. But by quoting the Parthenon, the Patent Office Building saluted the grassroots democracy of ancient Greece—a vision more in keeping with Jackson's own political ideals.

Though the Patent Office Building may have turned its face toward antiquity, it also embraced cutting-edge technology. Charged by Congress to render the structure fireproof, Mills devised an innovative system of masonry vault-

HARPER'S WEEKLY, JUNE 1861 / NATIONAL PORTRAIT GALLERY, S.I.; CAREY WINFREY

ing that elegantly spanned interior spaces without the aid of wood or iron. Dozens of skylights, hundreds of windows and a spacious central courtyard allowed most rooms to be illuminated by sunlight. Cantilevered stone staircases swept from floor to floor in graceful double curves.

Unfortunately for Mills, the Patent Office project would also come to embody some of the ugliest aspects of its era. President Jackson's enemies found the building a convenient symbol of "King Andrew the First's" grandiose egotism, and they missed no opportunity to undermine it. As the structure rose in stages through the 1830s and '40s, one Congressional investigation after another questioned Mills' competence, his expenditures and especially his cherished vaulting system, which was deemed dangerously unstable. Politicians compelled him to add supporting columns and tie rods, marring the pure lines of his original plan.

Egging on the anti-Jacksonians on Capitol Hill were some of Mills' fellow architects. A number of them—including Alexander J. Davis, Ithiel Town and William P. Elliot—had taken a hand in the Patent Office Building's early plans; scholars long debated which of these men deserves the most credit for its design. So the appointment of Mills as sole architect created resentments that festered for decades. "Mills is murdering the plans of the . . . Patent Office," wrote Elliot in a typical letter. "He is called the Idiot by the workmen."

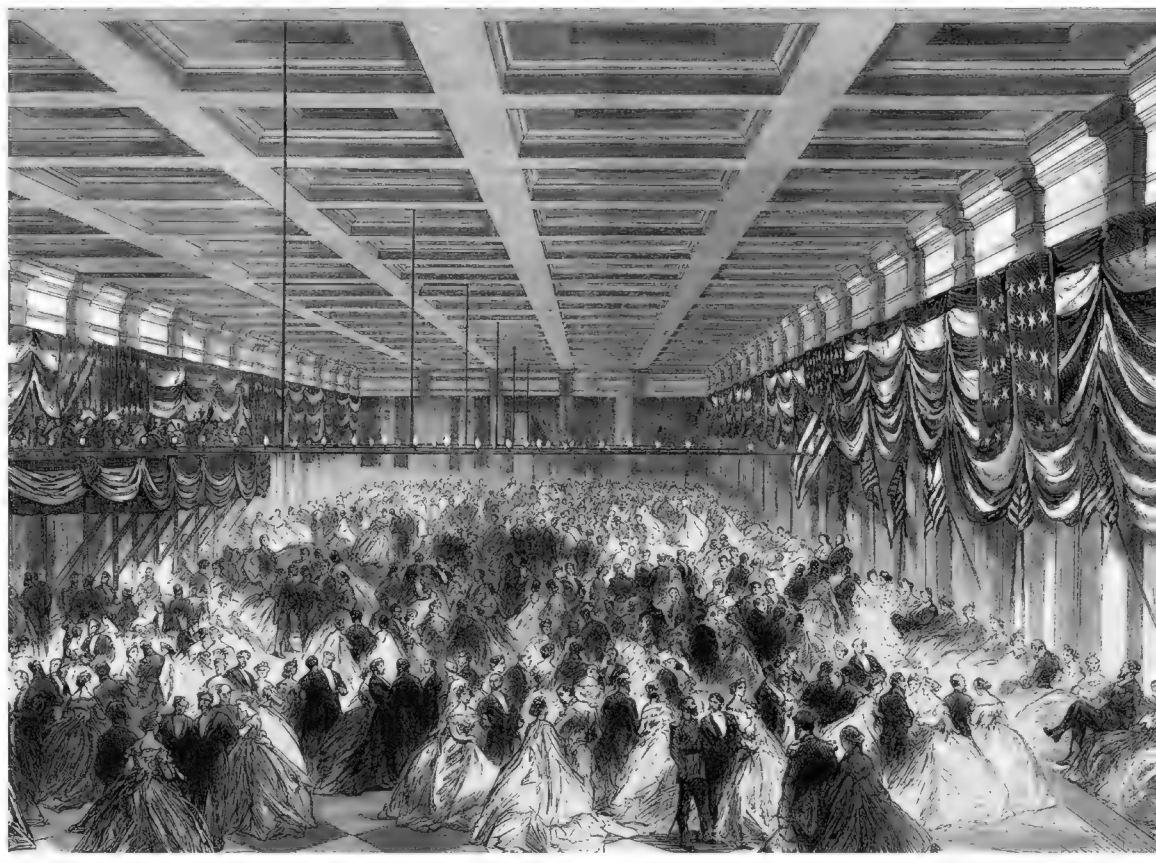
Whether the charges were true, the attacks eventually found their mark: in 1851, after 15 years on the job, Mills was unceremoniously dismissed. (It is still painful to read the Secretary of the Interior's neatly penned letter informing Mills dryly that "your services in the character of Superintendent will . . . be no longer required.") The architect would die four years later at age 73, still fighting for reinstatement.

Today—better 150 years late than never—Mills has been vindicated: the just-completed renovations bring much of the building closer to his original scheme than it has been since the 19th century. His vaulted ceilings, still sturdy, shine with fresh plaster, applied using traditional methods. Cracked and missing pavers in his marble floors have been carefully replaced. Windows and skylights have been reopened. Layers of dull, federal-issue paint have been carefully steamed off, revealing original surfaces beneath.

And for the first time in living memory, partition walls have been cleared away, reopening interior spaces and allowing visitors to roam freely, as Mills intended, around all four sides of the central courtyard. Sunlight gleams along his austere corridors, beckoning you onward into both the future and the past.

HAD YOU VISITED the Patent Office building in the 1850s—as nearly every Washington tourist of that day did—you would have been greeted by a hodgepodge of inventions, marvels and curiosities. In the grand exhibition hall in the south wing, display cases housed the Declaration of Independence, Andrew Jackson's military uniform and a piece of Plymouth Rock. Nearby were seashells, Fijian war clubs and ancient Peruvian skulls brought back by Lt. Charles Wilkes' expedition to the South Pacific, as well as souvenirs of Commodore Matthew Perry's then-recent visit to Japan. On the walls hung portraits of Revolutionary heroes and Indian chiefs. Many of these collections would later be transferred to the Smithsonian, forming the nucleus of the Institution's holdings in natural science, history and art.

If you had the stamina to continue, you would have found the patent models, tens of thousands of them. Here in facsimile were artificial limbs and teeth, coffins, beehives, sewing machines, telegraphs—all the quotidian proofs of American exceptionalism. In the corner of one dusty case, you might have noticed a contraption patented a few years before by an obscure Illinois congressman: an awkward-looking device for lifting a steamboat over shoals with inflatable airbags. Legend has it that later, when he became president, Abraham Lincoln enjoyed taking his young son Tad over to the Patent Office to show off his invention.



Guests danced until 4:00 a.m. when President Abraham Lincoln held his second inaugural ball at the Patent Office Building, March 6, 1865.

ILLUSTRATED LONDON NEWS, APRIL 1865 / NATIONAL PORTRAIT GALLERY, S.I.

But before long, visitors to the building would encounter a very different sight. In February 1863, soon after the calamitous defeat of Union forces at the Battle of Fredericksburg, Walt Whitman wrote in his diary:

A few weeks ago the vast area of the second story of that noblest of Washington buildings was crowded close with rows of sick, badly wounded and dying soldiers. . . . The glass cases, the beds, the forms lying there, the gallery above, and the marble pavement under foot—the suffering, and the fortitude to bear it in various

degrees . . . sometimes a poor fellow dying, with emaciated face and glassy eye, the nurse by his side, the doctor also there, but no friend, no relative—such were the sights but lately in the Patent Office.

THE GENTLE POET often visited this makeshift hospital by night, moving among the ranks of men and boys, comforting them, declaiming verses for them, scribbling their simple requests with a pencil in his notebook: "27 wants some figs and a book. 23 & 24 want some horehound candy."

In the late winter of 1865, Whitman would return to the rooms he had described so vividly. This time, however, the building was filled not with the dead and dying, who had been moved elsewhere, but with bunting, banquet tables and confectionery. The Patent Office Building, which rarely hosted grand public occasions, had been chosen as the locale of Lincoln's second Inaugural Ball. This event, coming at a moment when the Confederacy's defeat was clearly imminent, became a chance for Washingtonians to cast away the cares of the past four years. Even Lincoln danced, and so exuberant was the celebration that when a buffet was served in a crowded third-floor corridor, much of the food ended up underfoot, with foie gras, roast pheasants and sponge cake trampled into the floor.

A morning fire reduced the west wing of the Patent Office to a charred marble ruin in 1877. The blaze also destroyed some 87,000 patent models.

Down the hall in the east wing is the best-preserved of Robert Mills' grand public spaces, now known as the Lincoln Gallery. As part of SAAM, it will showcase contemporary works, including a giant flashing video installation by Nam June Paik. But its darker history has not been completely erased. During restoration, workers uncovered a faintly scratched graffito under layers of old paint on a window embrasure: "C.H.F. 1864 Aug. 8th." It is perhaps the last trace of an unknown soldier's sojourn here.

NOT UNTIL AFTER the Civil War was the immense building that Mills had envisioned finally completed. And it would not remain intact for very long.

On the unseasonably chilly morning of September 24, 1877, some copyists working in the west wing ordered a fire lit in their office grate. Sparks landed on the roof and ignited a wooden gutter screen. Before long, half the building seemed to be in flames. "The scene was one of awful grandeur," reported the *Evening Star*'s extra edition. "The cold, classic outline of the building was warmed up with a background of seething flame, curling, hissing, darting first here and there, taking no fixed course, but devouring everything within its reach." Although some 87,000 patent models were destroyed, a valiant effort by the Patent Office staff—and by fire companies from as far away as Baltimore—saved the most important artifacts. Still, the north and west wings stood as half-gutted shells. Mills had tried to make the building fireproof, but he could only go so far.

Ironically, although Mills' successor as architect, Thomas U. Walter, had been one of the harshest critics, claiming that Mills' vaulted ceilings would collapse in the event of fire, the conflagration actually consumed much of Walter's shallower, iron-reinforced vaulting, and left the earlier ceilings intact.

The task of rebuilding fell to a German-born local architect named Adolf Cluss, who in his youth, improbably enough, had been one of the chief political associates of Karl Marx and Friedrich Engels. By the 1870s, however, Cluss had left Communism far behind—and there was certainly no hint of proletarian revolution in his Patent Office designs. The cool austerity of the federal period would give way to a riot of lavish Victorian details—a style that Cluss termed "modern Renaissance"—not just in the west and north wing interiors, but also in Mills' undamaged Great Hall, which Cluss also remade, raising its ceiling. Faux-marbled walls flaunted portrait medallions of Franklin, Jefferson, Robert Fulton and Eli Whitney—a quartet of American inventors—while bas-relief goddesses of Electricity and Railroads smiled down from on high. Faceted stained-glass windows cast their dazzle across equally colorful floors of encaustic tile.

As part of the recent renovations, those walls, windows and floors have been meticulously restored for the first time since their creation. The floors proved a particular challenge; to set the thousands of replacement tiles the architects had to fly in a team of artisans from Hungary.

In an adjacent atrium, nearly as magnificent, Cluss lined the walls with tier upon tier of cast-iron balconies to hold patent models. This space, choked by partitioning in recent decades, has now been liberated again, and the balconies have been reclaimed to house the collections of the new Luce Foundation Center for American Art (see p. 48).

U.S. PATENT OFFICE

Cluss finished his work in 1885—and, unlike Mills, seems to have departed in good humor. He might have been less complacent, however, had he foreseen what lay in store for his handiwork. By the turn of the 20th century, the Patent Office Building—which now also housed the Department of the Interior—was seriously overcrowded, its grand spaces chopped up into offices. After 1932, when the U.S. Civil Service Commission took it over, fluorescent bulbs replaced the skylights, linoleum was laid over Mills' marble floors, and Cluss' magnificent walls were painted institutional green. A few years later, a street-widening project lopped off the monumental staircase from the south facade—leaving Mills' Parthenon looking, in the words of a critic, "like the end of a giant sliced sausage."

The final insult came in 1953. That year, Congress introduced legislation to demolish the whole Patent Office Building and, in the words of Marc Pachter, "replace it with that great monument of the American 1950s: a parking lot."

Luckily—as with the 1877 fire—quick-thinking rescuers saved the day. The nascent historic-preservation movement took up the cause of the much-abused edifice, and President Eisenhower was persuaded to intervene. Congress transferred the building to the Smithsonian. In 1968, the Portrait Gallery and the American Art Museum opened their doors in the newly remodeled Patent Office Building.

Craftsmen put the finishing touches on crown molding in a first-floor lobby (above, left). The last piece of the building's makeover, a $50 million glass roof over the courtyard (above, right) by British architect Norman Foster is scheduled for completion in late 2007.

CAREY WINFREY; FOSTER AND PARTNERS

WHEN THE TWO MUSEUMS closed for renovations in January 2000, they were expected to reopen in about three years. It turns out to have taken twice that long, but this delay—occasioned by the project's unforeseen complexity—proved a blessing. "I've come to believe that a lot of what's most spectacular and transformational has probably only occurred because we had more time to think," says SAAM's Elizabeth Broun. "I don't think any of us fully appreciated the building before; its extraordinary character had been obscured under decades of well-intentioned additions and accretions. But then we had a moment of realization that we could liberate this building and let it resume the life that it had in the 19th century."

Prior to the renovations, both museums—installed not long after the damaging effects of the sun on artwork began to be fully understood—were deliberately kept dark, with many of the original windows closed off. Now, new glass that blocks harmful ultraviolet rays allows the daylight to pour in as Mills intended. "So 21st-century technology makes the 19th century more present," says Pachter.

The work has cost more than 100 times the Patent Office Building's original construction price of $2.3 million. The federal government has provided $166 million, while the rest has come from private donations. Much of the expenditure—on such things as a new heating, ventilation, and air-conditioning system—will be invisible to visitors.

Perhaps the most dramatically visible elements of the whole construction project are yet to be seen. Plans are afoot to restore a version of Mills' demolished south facade staircase. And in the courtyard of the Patent Office Building, work is under way on an immense glass-and-steel canopy, designed by the renowned British architect Sir Norman Foster, which, when completed in 2007, will span the space in a single shimmering billow. It will be a gesture of vaulting ambition—both technical and aesthetic—that Robert Mills himself might well have admired. "We felt it wasn't betraying the building at all, but would bring in our own century's exuberance," Pachter says.

Visit Smithsonian.com to see more pictures of the Patent Office.

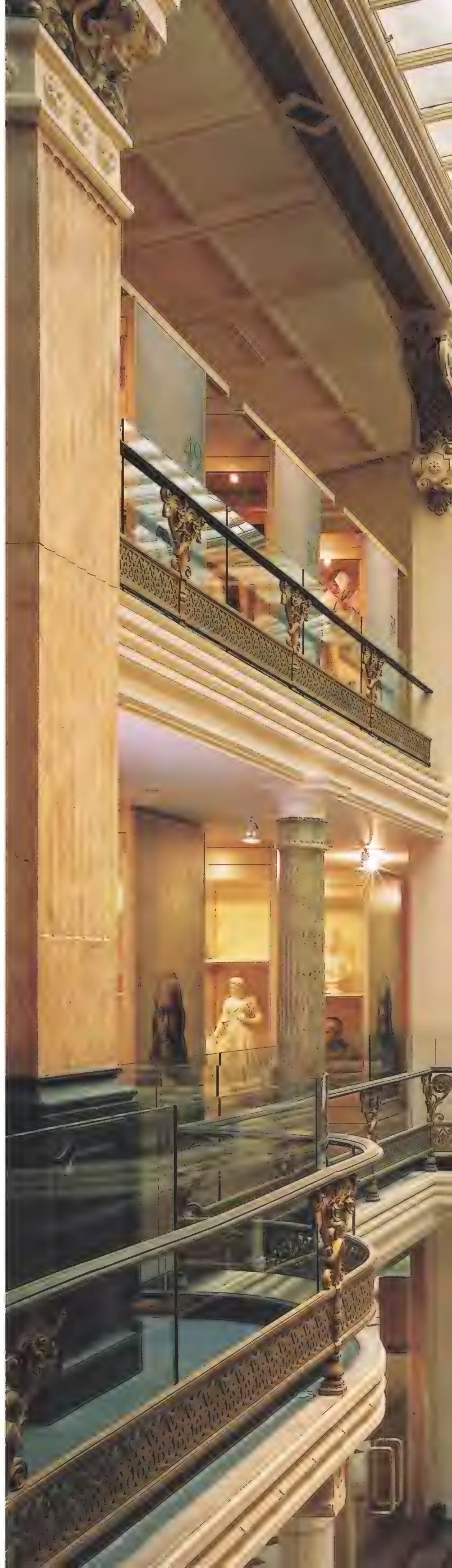
GRAND REOPENING

SPEAKING OF ART

Two museums return home and invite visitors to engage in "conversations"

BY ARTHUR LUBOW
PHOTOGRAPHS BY TIMOTHY BELL

"We spent a lot of time trying to figure out why people are scared of art," says Smithsonian American Art Museum chief curator Eleanor Harvey (right, the museum's new Luce Foundation Center for American Art showcases some 3,300 works). "We decided to let the art tell stories about how we got to be the country we are today, so art is not a tangent to your life but an illumination."



Most art museums seek to dazzle like Ali Baba's cave, but the Smithsonian American Art Museum (SAAM) and the National Portrait Gallery (NPG), which jointly reopen in the old Patent Office Building on July 1 after a six-year, $283 million renovation, greet visitors with a homey embrace. Touring the collections is like riffling through a family album or climbing into an attic rich with heirlooms. "One of the key things for me was striking the right balance between knowledge and experience," says SAAM director Elizabeth Broun. "There are certain people who are right at home in an art museum and others who might be intimidated."

Says Eleanor Harvey, SAAM's chief curator: "We spent a lot of time trying to figure out why people are scared of art. How do you give people back the sense of exploration and wonder?" The answer: tell them a story. "People love stories," Harvey continues. "We decided to let the art tell stories about how we got to be the country we are today, so art is not a tangent to your life but an illumination."

Broun and Harvey's colleagues at the National Portrait Gallery came to much the same conclusion. Although the NPG is a newer museum, it was born prematurely gray; at its opening in 1968, it specialized in presidents and generals—"white men on horses," quips the museum's director, Marc Pachter. Over the following decades the NPG broadened its range and, in 2001, scrapped its requirement that portrait subjects be dead for at least ten years. "We had a joke about whether someone was dead enough," Pachter says. The decade-dead rule was intended to ensure historical perspective, but it worked against the museum's ability to connect to its audience. "We have expanded, along with the nation, our notion of the background and definition of greatness," Pachter adds. "What we have not abandoned is the notion that it is still important to think about greatness. Mediocrity is well represented elsewhere."

Through portraits of remarkable Americans, whether revered (George Washington) or notorious (Al Capone), the NPG attempts to explore the ways in which individuals determine national identity. "Our society is obsessed by the role of the individual," Pachter says, "from celebrity culture today to heroes of the past." By displaying art in thematic groupings, both the NPG and SAAM aim to provoke conversations about what it means to be an American.

The two museums share one of the most august spaces in the nation's capital—the neo-Classical Patent Office Building, which was built, starting in 1836, to showcase the ingenuity of inventors. Over the years, the glories of its architecture had been dulled by alterations made to satisfy demands of the moment; the closing of the muse-

ARTHUR LUBOW *wrote about Norwegian artist Edvard Munch in the March issue of* SMITHSONIAN. **TIMOTHY BELL** *lives in New York City and specializes in architectural photography.*

P. 48 CAREY WINFREY

"We wanted to show how the physicality of America inflected how we developed as a country," says SAAM's Harvey (left, Albert Bierstadt's 1868 *Among the Sierra Nevada, California*). By eliminating offices, the NPG tripled its presidential portraits exhibition space (above, Robert Templeton's *Jimmy Carter*).

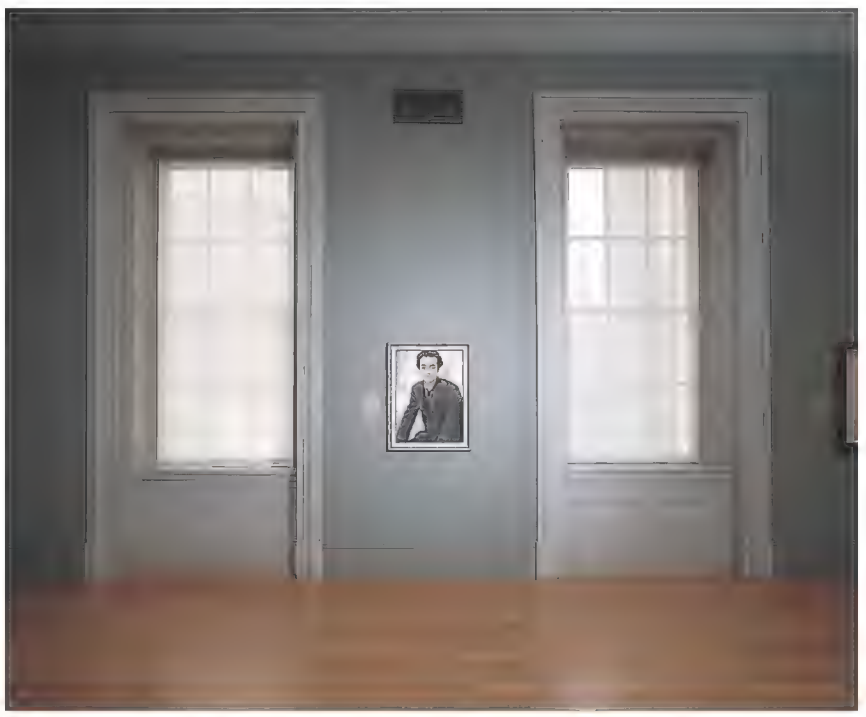
ums in January 2000 permitted a renovation that has stripped these away. Administrative offices were banished to create new galleries that fill the three main floors. Hundreds of walled-up windows are now exposed, allowing light once again to flood the interior. The windows were refitted with new glass, which was handblown in Poland to reproduce the slight waviness of the originals and, in a nod to 21st-century technology, augmented with filters that screen out ultraviolet rays that can damage works of art. "People will be amazed that the building that looked like a dark cave is now probably the most beautifully lit building in the city," says Broun.

No longer reached through separate doorways, the two museums will welcome visitors through a grandly porticoed entrance on the building's south facade. But while visitors to the two museums may arrive together, the museums themselves came here by divergent paths. SAAM traces its origins back to a 19th-century collection of mainly European art put together by a civic-minded art enthusiast named John Varden. At first, Varden displayed these works to the public in a gallery attached to his home, but by 1841 he had moved them to the top floor of the newly opened Patent Office Building. Willed to the nation, the Varden holdings were transferred to the first Smithsonian Institution building, the Castle, in 1858, from which the ever-growing collection relocated to the Arts and Industries Building in 1906 and to the new Natural History Building four years later. Then, in 1958, Congress presented the Patent Office Building to the Smithsonian. In 1962, the Institution made the decision to divide the building's space between its art collection, vastly expanded from the original Varden bequest, and the National Portrait Gallery, which Congress created that same year.

OVER THE YEARS SAAM—once called the National Collection of Fine Arts—has narrowed its mission to focus on American art, amassing one of the world's largest collections. The depth of the holdings allows the curators to present a nuanced narrative that can provoke a response from the viewer. "At the National Gallery and the Met," Harvey says, "what you see is an array of master-

works—gems in the tiara. Sometimes what you need to tell a complete story is more of a matrix of events and ideas that puts these masterworks in context. At SAAM, we're all about conversations."

And how best to start a conversation? In their new installations, SAAM curators chose to begin with landscapes. "One of the first things people usually ask in this country is 'Where are you from?' and the idea is that that information tells you something," Harvey explains. "We wanted to show how the physicality of America, from Niagara Falls to the Sierra Nevada, inflected how we developed as a country and a culture." Visitors who turn left at the main entrance to go to SAAM will be greeted by such Hudson River School paintings as Asher B. Durand's *Dover Plain, Dutchess County, New York* and by the even more expansive grandeur of the American West, as in Victor Higgins' *Mountain Forms #2*. The curators hope the landscapes will encourage visitors to think about broader issues—such as land development and conservation. But Broun emphasizes that SAAM is not a textbook. "It's 'What are the consistently relevant questions in every period?'" she says. "It's more about experience and insight than information." In this introductory exhibition, the curators have also hung a large group of the photographs of public monuments that Lee Friedlander has been taking since the 1960s. That series segues into another photographic display, in which Americans of all ages and colors are represented in the works of many photographers. Says Harvey: "There are photographs of a Fourth of July barbecue, Lewis Hine's tenement kids, mid-century debutantes—to remind you that photography occupies a vernacular role, and without people, place doesn't mean anything."



AFTER ENTERING, those who turn right, toward the National Portrait Gallery, will also find themselves in a familiar, contemporary environment. In two exhibitions, "Americans Now" and "Portraiture Now," visitors "will be able to see portraits of people just like them and go into the historical galleries with that visual information to start a dialogue about historical lives," says Brandon Fortune, the NPG's associate curator of painting and sculpture. "You can't get to Benjamin Franklin without walking past big photographs of teenagers. We're very proud of that." In addition to photography, which the NPG began collecting in 1976, the museum has embraced such unconventional approaches to portraiture as a hologram of President Reagan and a video triptych of David Letterman, Jay Leno and Conan O'Brien. "These are all delivery systems of personality," says Pachter. "I think of coming to the gallery as an encounter between lives. You're not coming just to look at brushstrokes."

In a kind of operatic overture—in galleries labeled "American Origins"—the NPG sweeps across the centuries from 1600 to 1900 on the first floor, before arriving, on the second, at the exhibition that most pre-renovation visitors will likely remember best: "America's Presidents." In the previous installation, the collection was confined to the Hall of Presidents, but that imposing, stone-columned space now covers only the nation's leaders from Washington to Lincoln, and a gallery about twice its size brings the story up to the present, including an official portrait, *William Jefferson Clinton* by Nelson Shanks, that was unveiled on April 24.

The prize of the presidential collection—arguably, of the entire NPG—is the full-length painting of Washington by Gilbert Stuart known as the Lansdowne portrait. Stuart painted it from life in 1796, shortly before the first president concluded his second term in office. Although two other versions exist, this is the original. It depicts Washington in a simple black suit, clasping a sheathed ceremonial sword in his left hand and extending his right arm in what may be a gesture of farewell. "The Constitution barely describes the presidency," Pachter says. "This painting is the defining document." Ironically, the Lansdowne portrait spent most of its life in England. It was commissioned by a wealthy Pennsylvania couple, the Binghams, as a gift for the Marquis of Lansdowne, who had been sympathetic to the American cause. In the 19th century, the painting was sold to the Earl of Rosebery, from whom it descended into the possession of Lord Dalmeny, the current heir to the earldom.

From the time the NPG first opened, the museum had exhibited the Lansdowne portrait on extended loan. When Dalmeny announced his intention of selling it at auction in 2001, Pachter was aghast. "It is a great painter doing a portrait of a great American at the perfect moment," he says. "That is our ideal image. Losing it was the most awful thing I could have contemplated." He went to Dalmeny, who of-

The renovation created "probably the most beautifully lit building in the city," says SAAM's Broun (above, windows flank Winold Reiss' portrait of sculptor Isamu Noguchi). Natural light through an oculus (right, works by Mark Rothko, at left, and Sean Scully) illuminates SAAM's contemporary art gallery.

fered it to the Smithsonian for $20 million—"a lot of money," Pachter admits, "but maybe less than he would have gotten at auction." Pachter took to the radio and television airwaves to publicize the museum's plight and, after just nine days, found deliverance in a benefactor. The Donald W. Reynolds Foundation of Las Vegas, Nevada—a national philanthropic organization founded in 1954 by the late media entrepreneur for which it was named—donated the full purchase price, plus an additional $10 million to renovate the Hall of Presidents and to take the Lansdowne painting on a national tour. Last October, the foundation donated an additional $45 million for the overall work on the Patent Office Building. "It was," says Pachter, "to use one of George Washington's words, 'providential.'"

WHILE SAAM hasn't reeled in quite as big a fish as the Lansdowne, it, too, made some splashy acquisitions during the renovation, including *Industrial Cottage* (below), a 15-foot-long Pop Art painting by James Rosenquist; *The Bronco Buster,* a Frederic Remington bronze sculpture; and *Woman Eating,* a Duane Hanson resin and fiberglass sculpture. SAAM has also commissioned a new work, *MVSEVM*, by San Francisco artist David Beck, a treasure cabinet with pull-out drawers that is inspired by the neo-Classical grandeur of the Patent Office Building.

While the transformation of offices into galleries opened up 57,000 square feet of additional floor area, the reclamation of windows in the building resulted in a loss of wall space, which SAAM curators have seized as an opportunity to display more sculpture. "We've got the largest collection of American sculpture, period," says SAAM's Harvey. "It's not a footnote, an afterthought, an appendage. It's part of the story of American art." In the old days, SAAM displayed most of its sculpture in the building's long corridors. Now sculpture is dispersed throughout the galleries.

So is furniture, which was not previously exhibited in the museum. "It's not about becoming Winterthur [the du Pont estate near Wilmington, Delaware]," says Harvey. "In Colonial history, with the exception of John Singleton Copley and a couple of other painters, you're better off with furniture."

By the time a visitor reaches SAAM's contemporary collection on the third floor, the distinctions between fine and decorative art begin to blur. A 22-foot painting by David Hockney of interlocking abstract forms, illuminated by a programmed series of colored lights, shares space with the late video artist Nam June Paik's neon-festooned assemblage of television sets in the shape of a map of the United States. "We focused a lot on contemporary artworks that we feel are deeply experiential," says director Broun. In addition, the definition of what constitutes an American artist

The Throne of the Third Heaven of the Nations' Millennium General Assembly **(above) was found in a garage after the 1964 death of its self-taught creator, Washington, D.C. janitor James Hampton.** ***Industrial Cottage*** **(below) by Pop artist James Rosenquist is a recent addition to SAAM's collection.**

SMITHSONIAN AMERICAN ART MUSEUM

is interpreted broadly. The NPG depicts non-American citizens who have influenced American history—Winston Churchill and the Beatles, for example—and SAAM includes foreign artists, such as British-born David Hockney, who had an important impact on American culture. "Hockney has been in Los Angeles since the 1970s," says Harvey, "and there is no L.A. art of the 1980s without him."

LIKE MOST MAJOR museums, SAAM will never have enough space to display the bulk of its treasures. To help remedy that, the renovation features an innovative storage and study center that contains some 3,300 works (more than three times the number in the exhibition galleries) and is fully accessible to visitors. Paintings, sculptures, crafts and miniatures can all be scrutinized in 64 glass cases on the third and fourth floors, with interactive kiosks to provide information on individual pieces.

Besides expanding the viewable collection, the Luce Foundation Center for American Art, as the storage and study center is known, aims to enhance the visitor's appreciation of the curator's role. "We have 41,000 artworks," says Broun. "Any other team of people would have picked different ones to show in the galleries. It's a way of empowering the public to see not only what you choose but what you didn't choose." In the same spirit, NPG curators are also emphasizing that museum displays depend on the preferences and selections of the particular person assembling them. Each year, for example, one gallery will be given over to an individual curator's take on an individual life: for the opening installation, poet and NPG historian David Ward has created an exhibit on Walt Whitman, who nursed wounded soldiers in the Patent Office Building during the Civil War. "I want people to understand that these lives are seen through different mirrors," says Pachter. "It might be the artist's, it might be the curator's, but these are representations, not the life itself."

Perhaps the most unusual feature of the reconfigured building is the Lunder Conservation Center, on the third-floor mezzanine and the skylit fourth-floor penthouse. In the center, which is shared by SAAM and the NPG, museumgoers can watch through glass walls as conservators analyze and, very carefully, restore artworks. "I think people are genuinely fascinated by what goes on behind the scenes at a museum," Harvey says. "This gives them a window on it, literally."

Another attempt at breaking down the barriers between the public and art is a national portrait competition that the NPG inaugurated last year. Named after a longtime volunteer docent who underwrote it, the Outwin Boochever Portrait Competition attracted more than 4,000 contestants, from every state, in its first year. The winner, to be announced shortly before the museum opens, will receive $25,000 and a commission to portray a prominent American.

Both museums feature works by artists who never became household names. Indeed, at SAAM, there are a number of distinguished pieces by self-taught amateurs. "Art is something you make out of passion and a desire to communicate," says Harvey. "I think it's a sad day when you stop making refrigerator art. You keep on singing in the shower. You shouldn't stop making art." Probably the most popular work in SAAM is by a man who followed that credo with religious zeal. *The Throne of the Third Heaven of the Nations' Millennium General Assembly* (opposite) is an eye-popping construction of furniture, light bulbs and other discards that Washington, D.C. janitor James Hampton wrapped in tinfoil and assembled unobserved in a rented garage, beginning around 1950. Discovered only after Hampton's death in 1964, this glittering creation could be the suite of furniture of a heavenly host in a low-rent tinsel paradise.

NPG's Outwin Boochever Portrait Competition attracted some 4,000 entries. Brooklyn artist Yuqi Wang (above, his *From Red Hook*) is one of the seven short-listed finalists.

In representing the fierce, isolated individuality of one artist's vision, Hampton's *Throne* is a fitting complement to a gallery devoted to eight works by Albert Pinkham Ryder. "Ryder is almost emblematic for our building," says Broun. "This building was looking back to a classic era and also looking to the future, and so was Ryder. He was painting narrative stories from the Bible and 16th-century English history. At the same time, he was working with new types of paint and exploring ways that the paint itself conveys the meaning of the picture—so that if you work long enough with layer on boggy layer, you get a meaning that you wouldn't expect." Because Ryder experimented restlessly with new ways to bind his pigments, many of his paintings have darkened with time and their layers have cracked. Nevertheless, he was a prophetic figure for later generations of painters. Visionary, recklessly inventive, leading a life both noble and tragic, he was also peculiarly American. For a visitor wandering the reborn Patent Office Building galleries, the Ryder room is a fine place to pause and contemplate the mysteries of our national identity.

Visit Smithsonian.com for more museum reopening information.

BUILDING

For all their size and ferocity, tigers are hard to find when they don't want to be found. Indian wildlife biologist A.J.T. Johnsingh (right, in the Terai Arc) and his colleagues across the border in Nepal use animal tracks, camera traps and other clues to learn whether linking a chain of wildlife reserves and other conservation measures are working. The animals they want to save have their backs up against the Himalayas.

Despite poachers, insurgents and political upheaval, India and Nepal's bold approach to saving wildlife in the Terai Arc just may succeed

BY JOHN SEIDENSTICKER AND SUSAN LUMPKIN

AN ARC

IT WAS NEARLY DUSK when A.J.T. Johnsingh set off at his usual forced-march pace down a dusty path hugging the eastern bank of the Ganges River in Rajaji National Park. Johnsingh, one of India's foremost conservation biologists, was looking for tiger tracks, though he hadn't seen any here in years. Every few yards, he trotted off the path and onto the sandy riverbank, calling out the names of birds and plants he spotted along the way. Suddenly he stopped and pointed at a paw print—a tigress. Any other tracks she left had been obliterated by human footprints, bicycle treads and the mingled tracks of cattle, goats, deer, pigs and elephants. But we were thrilled: somewhere, not far away, a tiger was stirring.

India's Rajaji National Park, which lies 140 miles northeast of New Delhi, is bisected by the slow-moving Ganges just south of where the river tumbles out of the Himalayas. In the past, tigers, elephants and other animals had little trouble crossing the river in this region, but now roads, train tracks, irrigation canals, a multitude of temples and ashrams and a military ammunition depot pose a formidable barrier, creating two separate park areas. The riverside forest Johnsingh led us through is the last mile and a half of corridor between the two parts of Rajaji National Park. Johnsingh has struggled for years to keep this crucial forest link intact so that populations of animals don't get stranded on one side or the other.

Johnsingh, a wildlife biologist with the World Wildlife Fund's India branch and the Nature Conservation Foundation, was excited by the prospect that the tigress might venture across the river and mate with tigers in the western half of Rajaji, giving the isolated, declining tiger population there a much-needed boost of fresh genes. "For more than 20 years I've seen the habitat get mostly worse in Rajaji," Johnsingh said. "This tiger's track on the riverbank tells me we might be turning the corner and that maybe we can restore and maintain tigers in this park, and beyond."

The effort to preserve this habitat spanning the Ganges is but a small part of a grand conservation experiment being conducted at the base of the Himalayas in northern India and western Nepal, along a green ribbon of forest and tall grassland called the Terai (Sanskrit for "lowlands") Arc. One of the world's most diverse landscapes, it is also one of the most imperiled. Between Rajaji and Parsa Wildlife Reserve, about 620 miles to the east in Nepal, lie several protected areas that conservationists hope to string together as a stronghold for tigers, leopards, Asian elephants and other endangered species.

The need for such an approach is acute, and growing. Today, India's economic boom threatens to obliterate the 11 percent of the nation that still shelters large mammals. There is a huge demand for wood and stone for construction. New roads, including one called the Golden Quadrilateral, a multilane highway that links India's major cities, gobble up and fragment wildlife habitat. At the same time, many Indians remain desperately poor. Some people poach wild animals to put food on their tables, and they collect wood from protected forests for cooking. Illegal wildlife traders also hire the poor to poach tigers and other animals, paying them money they cannot match at other jobs. The skin and bones of a tiger fetch traders thousands of dollars on the black market.

In Nepal, the problems have been even worse. A deadly conflict has raged for more than a decade between the government and a homegrown Maoist insurgency. In February 2005, King Gyanendra assumed absolute control of the government. Massive pro-democracy demonstrations in Katmandu and other cities, in which 17 protesters were killed and many more injured, forced him to restore Parliament in April of this year. The Maoists have agreed to peace talks, but whether they will now join the political process or return to armed conflict was an open question as this magazine went to press.

Intense fighting in the past five years has put Nepal's tigers, rhinos and elephants at greater risk, because it has diverted law enforcement's attention away from the illegal killing of wild animals, which appears to be on the rise. The hostilities have also scared away tourists—one of the nation's largest sources of foreign exchange. Tourism gives value to wildlife and helps ensure its survival.

In a sense, the protected areas of the Terai Arc frame a big idea—that tigers, elephants, rhinos and human beings can live together along the base of the Himalayas, one of the most beautiful places on earth. The notion of creating vast international conservation areas by linking smaller ones isn't new—some conservationists have proposed con-

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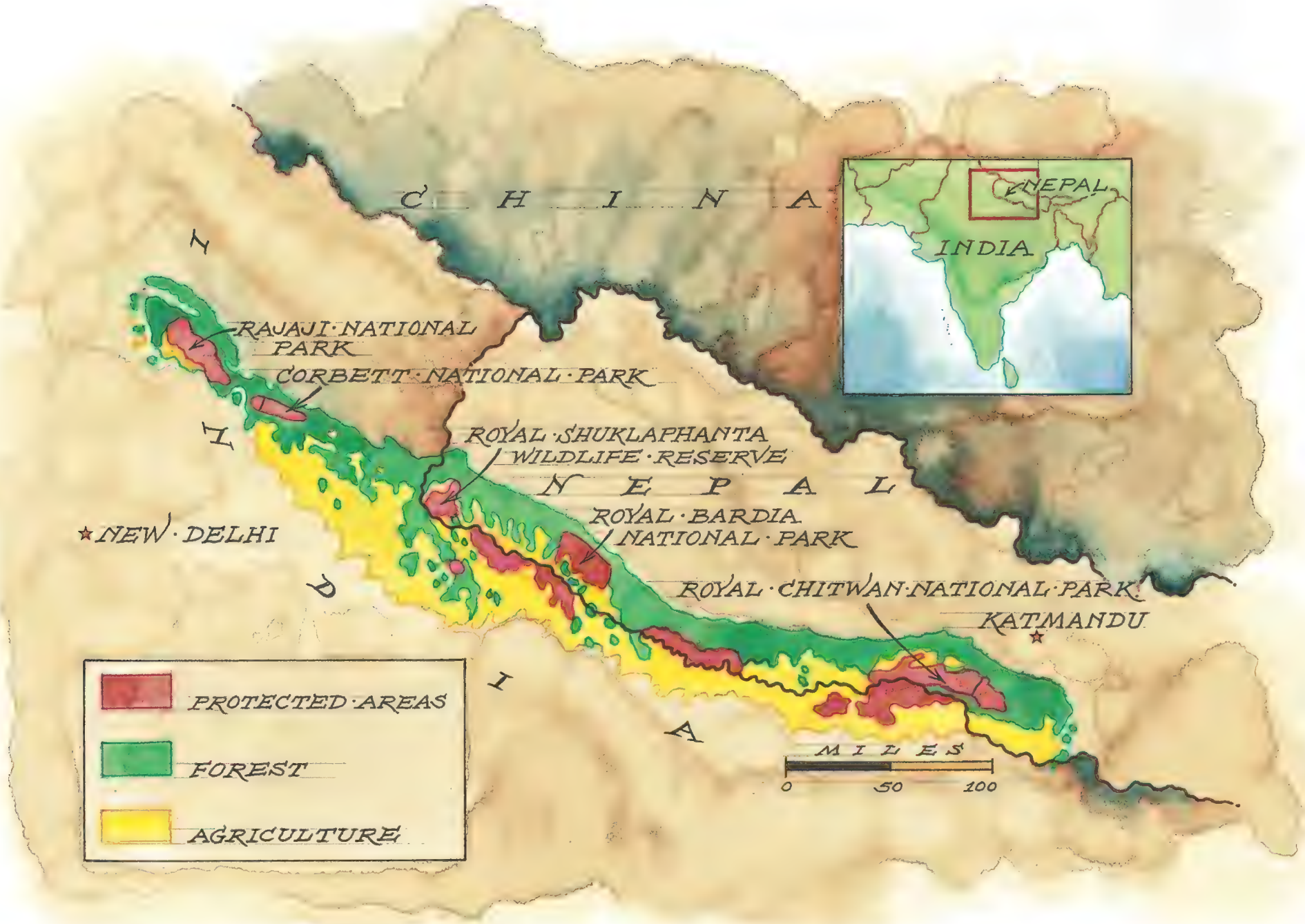
JOHN SEIDENSTICKER; P. 56, 57 FRANS LANTING; P. 57 NIMA MANJREKAR; P. 59 MAP: MIKE REAGAN; MAHENDRA SHRESTHA



The Terai Arc (above) is one of the last places in the world where tigers (a track near the Ganges River in India, opposite), rhinos and elephants live together in the wild. Political chaos in Nepal disrupted conservation (an anti-poaching patrol in Royal Chitwan National Park) and scared off tourists, but now the country appears to be stabilizing.

Poachers kill rhinos for their horns (which are used not in aphrodisiacs but traditional nostrums). But most charismatic species are slaughtered for their hides (confiscated leopard, snake and tiger skins in Nepal, above). Many poachers escape patrols by soldiers, but prison awaits those who are caught.

necting Yellowstone to the Yukon, for instance—but nowhere has the approach gone as far as it has in the Terai Arc. This past fall, we traveled the length of the region on behalf of the Smithsonian's National Zoological Park and the conservation organization Save the Tiger Fund. On previous visits we'd seen signs of flourishing wildlife. But given a recent plague of poaching in India and the hostilities in Nepal, we wondered how much would be left.

THE BROTHERS A. S. and N. S. Negi are separated by 18 years of age but are united in their passion for conservation. N. S., now 81, served for many years as a forest ranger in Corbett National Park, 20 miles to the east of Rajaji; A. S. Negi was Corbett's director in the early 1990s. Now both retired, the brothers and Johnsingh formed a small organization called Operation Eye of the Tiger in 1996 to protect tigers and preserve their beloved park, named for Jim Corbett, the British hunter who killed numerous man-eating tigers in northern India in the first half of the 20th century. We met up with the Negi brothers in the bucolic Mandal Valley that forms the northern boundary of the park.

Eye of the Tiger has helped 1,200 families in the area buy liquid petroleum gas connectors, which allows them to cook with gas instead of wood. This has helped reduce the amount of firewood burned by each family by up to 6,600 to 8,800 pounds per year. Not only does this save the forest for wildlife, it also saves women and girls from the arduous task of collecting firewood—and the danger of encountering a tiger or elephant. Unfortunately, A. S. Negi says, the price of bottled gas, once low, is rising in energy-hungry India and may soon be out of reach of most villagers. Through additional subsidies, the Negis told us, they persuaded some villagers to replace their free-ranging scrub cattle, which graze in wildlife habitat, with animals that yield more milk and are not allowed to roam. But we wondered what such small steps might have to do with tiger conservation.

The next morning we found out. We drove to the border of the tiger reserve and hiked in, and soon we spotted the tracks of a tiger that had followed the very trail we were on for about 100 yards before it padded overland to the river below. This tiger would make an easy mark for a poacher, but it was quite fearlessly there, sharing this valley with the villagers. Before the Negis began their work, poaching was rampant in this area. It seems their attention to the villagers has indeed made a difference, and we think the lesson is clear: if tigers are to survive in this landscape, it will happen one village at a time.

Most of the forest between Corbett and the Royal Shuklaphanta Wildlife Reserve in Nepal is managed to

JEFF FOOTT

produce timber, with its teak and eucalyptus trees planted in straight lines. But the area is also rich in the big rocks favored for construction materials. Johnsingh pointed to men hauling boulders in a dry riverbed. From there the boulders were pitched onto trucks and driven to railway heads, where workers crushed them with sledgehammers. This backbreaking work is done by the very poor, who camp in squalor where they toil and survive by gathering firewood and poaching in the surrounding forests. Boulder mining was banned in some Indian parks, whereupon the miners promptly moved their operations outside the protected areas. Johnsingh believes that a better solution would be to permit boulder mining along developed stretches of riverbed and prohibit it where wildlife needs passageways.

Emerging from the forest about 20 miles from the Nepal border, we inched in our four-wheel-drive vehicle along a two-lane highway crowded with pedestrians and an impossible assortment of cattle carts, bicycles and motorcycles, overflowing pedicabs, taxis, cars large and small, buses, trucks and tractor-pulled trailers. This is a prosperous area, thanks to dams that provide power to villages and water for irrigated agriculture. No tiger could navigate this maze, but Johnsingh has identified a potential forest corridor to the north through which it could make its way.

Is there room in the Terai Arc for people and wildlife? One win-win solution helped villagers replace forest-foraging cattle with a breed that produces more milk and is kept close to home.

JOHN SEIDENSTICKER

Entering Nepal, Johnsingh hands us over to Mahendra Shrestha, director of the Save the Tiger Fund. We had been uneasy about going into Nepal. The conflict with the Maoists has killed some 13,000 people here since 1996, most of them in the very countryside to which we were headed. In summer 2005, five of Shrestha's field assistants were killed when their jeep ran over a land mine likely planted by the Maoists. But in September 2005, the insurgents had begun a unilateral, four-month-long cease-fire, and our trip had been timed to coincide with it.

We spent the night in Mahendranagar, a small town at the edge of Shuklaphanta. A battalion of about 600 soldiers is stationed inside and around the park. In the 1970s, when poaching of rhinos and tigers was rampant, the Royal Nepalese Army took over security in Nepal's national parks and wildlife reserves. Since the insurgency began, the army has devoted more effort to quelling it and defending itself than to patrolling for poachers. Soldiers were moved from forest outposts to fortified bases, giving both Maoists and poachers greater freedom in the forests.

Shuklaphanta contains 40 square miles of grassland surrounded by a forest of sal trees. Some of the tallest grasses in the world, standing more than 20 feet high, thrive here. Driving along a rutted dirt road, we saw wild boar, spotted deer and even a small herd of hog deer—the rarest deer of the Terai Arc. But we had come to find out how tigers, leopards, elephants and rhinos, so attractive to poachers, were faring with the army preoccupied with the Maoists.

A glimpse of two elephants, one rhino track and one tiger track next to a water hole bolstered our spirits. In fact, the park's warden, Tika Ram Adhikari, told us that camera traps had recently documented 17 adult tigers here, for a total estimated population of 30, which means they're as dense in this area as in any place they live.

Adhikari's usual ebullience evaporated at a water hole littered with dead and dying fish. Cans of pesticide—used to stun and kill fish so they float to the surface—lay on the shore alongside fishing nets. Poachers had dropped the tools of their trade and vanished upon our arrival. At another nearby water hole, a distraught Adhikari pointed out a set of tiger tracks, normally a cause for cheer but now worrisome. What if the tiger had drunk from the poisoned pond? Even more troubling was the thought that local attitudes toward the park and its wildlife might be shifting.

From Shuklaphanta we continued east along the highway toward Royal Bardia National Park, Nepal's next protected area, stopping often at heavily fortified checkpoints so that armed soldiers could inspect our credentials. The soldiers' behavior was entirely professional; these were not hopped-up teenagers brandishing rifles in our faces. But we stayed alert, aware that there are good and bad guys on both sides of the conflict. For example, the Nepalese Army has been accused of torture and other abuses, and Maoists have been known to invite people to step safely outside before blowing up a building.

MAOIST INSURGENTS control more than half of Royal Bardia National Park's 375 square miles. As we sipped scotch after dinner at Bardia's nearly empty Tiger Tops Karnali Lodge, the evening's quiet was shattered by the sounds of shouting, clashing gongs and thumping drums—villagers trying to drive off elephants intent on eating unharvested rice. We heard the same ruckus the next two nights. With noise pretty much their only defense, the villagers are outmatched by the crop-raiding pachyderms. Between eating it and stomping it, just a few elephants can destroy a village's rice crop in a night or two.

We caught up with the marauders the next afternoon on

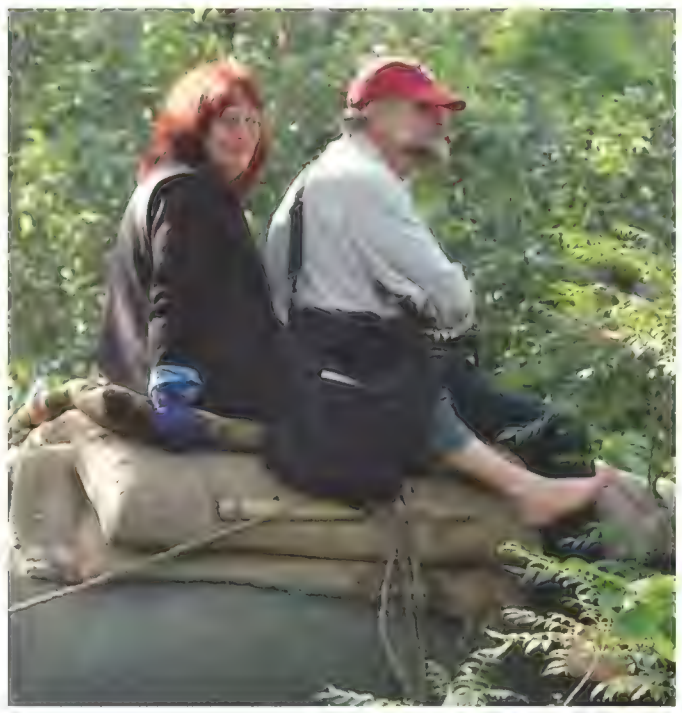
an elephant-back tour of the park. Our trained elephants sensed the presence of their wild relatives in a dense patch of trees, and our elephant drivers moved cautiously toward them so we could get a closer look. But with the first glimpse, the animals we were riding backed away, and we retreated hastily across a river. Three wild males—which we nicknamed the Bad Boys of Bardia—glowered at us from the other side until, with the light failing, we finally departed.

Wild elephants disappeared from Bardia many years ago, but in the early 1990s, about 40 somehow found their way back. No one is sure where they came from—perhaps as far away as Corbett National Park—and today they number between 65 and 93. Copying a model pioneered in Chitwan, conservationists in Bardia worked with local community groups to protect this forest and help them raise and market such cash crops as fruit and medicinal herbs.

In the buffer zone around Bardia, we met with members of one of these associations, the Kalpana Women's User Group. They told us that one recently completed project is a watchtower from which farmers can spot wild elephants. They also told us they have purchased biogas units so they no longer have to collect fuel wood in the forest. (Biogas units convert human and animal waste into methane, which is used to fuel stoves and lanterns.) Last year, the women won a conservation award from the World Wildlife Fund program in Nepal, and they used the 50,000 Nepalese rupee prize (about $700) to lend money to members for small enterprises such as pig and goat farms. These women, with sheer angry numbers, have also arrested timber poachers and received a share of the fines imposed on the culprits.

But success breeds problems. In the Basanta Forest, between Shuklaphanta and Bardia, tigers killed four people in 2005, and 30 elephants destroyed nine houses. "We like to have the wildlife back," a member of a Basanta community group said to us. "Now what are you going to do about it?" There is no easy answer.

"Experiencing the Terai Arc from elephant back is the treasure of a lifetime," says story author John Seidensticker (with co-author Susan Lumpkin in Nepal's Royal Chitwan National Park). "You always have the feeling that, nearby, a tiger is watching."



IT'S A DAY'S DRIVE—about 300 miles—from Bardia to Nepal's Royal Chitwan National Park. Though tigers live in the forests between the two parks, bustling towns in the river canyons between them prevent the animals from moving freely from one to the other.

Our excitement at finding fresh tiger tracks on a riverbank near a Chitwan beach faded after we entered the park itself. Moving in and out of forest and grassland, we scoured the landscape looking for rhinos. In 2000, we saw so many—at least a dozen during a three-hour elephant ride—that they lost their allure. But on this morning, only five years later, we spotted just one.

Only organized poaching could explain such large losses. Poaching rhinos for their horns (which aren't really horns but compacted masses of hair used in traditional Chinese medicine—not as an aphrodisiac as is widely believed) was rampant in the 1960s. After poaching was curbed by the army beginning around 1975, rhino numbers rapidly recovered. But here, as in Bardia and Shuklaphanta, the Nepalese Army abandoned the park's interior to fight Maoists, and the poachers returned in force.

Eventually, though, the loss of the park's 200 or 300 rhinos spurred warden Shiva Raj Bhatta to action. He told us that in the few months before our visit, he had arrested more than 80 poachers—all now languishing in a local jail. Under the leadership of a hard-nosed colonel, the army, too, had reportedly stepped up its anti-poaching patrols.

More encouraging still, Chuck McDougal, a longtime Smithsonian research associate and a tiger watcher for more than 30 years, informed us that a census he'd just completed found all 18 tigers in western Chitwan present and accounted for. What's more, McDougal reported, a pair of wild elephants were turning up regularly—a mixed blessing. And the first group of American tourists in more than two years had just checked in at Chitwan's first tourist lodge.

In 2005, Nepal recorded 277,000 foreign visitors, down from 492,000 in 1999. Although tourists have largely escaped the attention of Maoist rebels, some visitors have been forced to pay a "tax" to armed insurgents. The possibility of getting caught in a crossfire or of being blown up by one of the mines that lurk under certain roads has kept tourists away. In Baghmara, on the northern border of Chitwan, tourist dollars offer an incentive to villages to tolerate tigers and rhinos, but with tourism at a nadir and tiger attacks on the rise, tolerance is wearing thin.

THE SAVE THE TIGER FUND recently reported that tigers now live in only 7 percent of their historic ranges across Asia. At the same time, the amount of habitat occupied by tigers has fallen by 40 percent in the last ten years. After 35 years of working to promote the conservation of tigers and other large mammals, we find these statistics terribly depressing. But the Terai Arc is one of the

MAHENDRA SHRESTHA

Camera traps, triggered by infrared sensors, allow biologists to estimate wildlife populations and, in some cases, identify individuals. Elephant bulls (although not the juvenile, above) have distinctive tusks; tigers have distinctive stripes, and sometimes you really can tell a leopard by its spots.

BIVASH PINDAV (3)

few bright spots highlighted in the report.

Despite the obstacles—from boulder-mining to crop-raiding—our traverse of the arc largely confirmed the report's optimism and helped dispel our gloom. Here, tiger numbers are increasing and tiger habitat is improving. Elephant numbers are also on the rise, and rhinos will surely rebound if anti-poaching efforts can be resumed. Local people are benefiting from conservation, too, although much more needs to be done—such as surrounding crops with trenches or plants unpalatable to animals and building more watchtowers—to protect them from wild animals roaming their backyards.

If the goal of a connected, international conservation landscape comes to fruition, the arc may become one of the rare places where tigers, rhinos and Asian elephants survive in the wild. How it fares will tell us whether people and wildlife can thrive together or if that is just a dream.

Visit Smithsonian.com to see more photographs by John Seidensticker.

A MYSTERY FIT FOR A Pharaoh

The first tomb to be discovered in the Valley of the Kings since King Tut's is raising new questions for archaeologists about ancient Egypt's burial practices

BY ANDREW LAWLER **ILLUSTRATION BY STAN FELLOWS**

It is barely 7:30 a.m. in the Valley of the Kings, and tourists are already milling just beyond the yellow police tape like passersby at a traffic accident. I step over the tape and show my pass to a guard, who motions for me to climb down a wooden ladder sticking out of a small, nearly square hole in the ground. Eighteen feet down a vertical shaft, the blazing Egyptian sun is gone, the crowd's hum is muted and the air is cool. In a small chamber lit by fluorescent lamps, a half-dozen archaeologists are measuring, drawing and gently probing relics in the first tomb to be found in the Valley of the Kings, more than 400 miles up the Nile from Cairo, since the resting place of King Tutankhamen was discovered here 84 years ago.

A jumble of seven wooden coffins of various sizes fills one corner of the room. Termites have turned parts of some of them into powder, while others have suffered only a thin layer of dust. Edwin Brock, an Egyptologist formerly at the American University of Cairo, is on his knees, cataloging the contents of a coffin filled with a strange assortment of pottery, rocks, cloth and natron—the powdery substance used to dry mummies. A couple of yards away, University of Chicago archaeological artist Susan Osgood intently sketches the serene yellow face painted on a partially intact coffin. It was likely built for a woman; men's faces were typically rendered a sunburned red. Deeper in the pile, a child-size casket is nestled between two full-sized ones. Something resembling a pillow seems to bulge out of another casket. The 17-foot-long space, which has plain limestone walls, also holds a number of knee-high ceramic storage jars, most still sealed.

The entrance to the newfound tomb was hidden for more than 3,000 years beneath the remains of ancient workmen's huts (the exposed shaft, left). The tomb (a coffin with inlaid glass eyes, above) was sealed during a most tumultuous time.

GEORGE JOHNSON; P. 64 STANFELLOWS.COM

Nervous about bumping into someone—or worse, some*thing*—I make my way back out to the narrow shaft and climb to the surface with Otto Schaden, the dig's director. Until this past February, he had worked in obscurity, splitting his time between studying a minor Pharaoh's tomb nearby and playing bass fluegelhorn in a Chicago band. Back up amid the heat and tourists, the 68-year-old archaeologist pulls out tobacco and bread crumbs, thrusting the first into a pipe and flinging the second onto the ground for some twittering finches. Just yards away, visitors in shorts and hats are lining up to get into King Tut's cramped tomb, named KV-62 because it was the 62nd tomb found in the Valley of the Kings.

Accordingly, Schaden's newly opened chamber is KV-63. Unlike Tut's, it contains neither gold statues and funerary furniture nor, as of early June, the mummified body of a long-dead Pharaoh. Despite the coffins, this probably isn't even a gravesite. Still, the discovery, announced in February, was trumpeted worldwide, because most archaeologists

had long ago given up hope of finding significant discoveries in the valley. More remarkably, the artifacts appear to have been undisturbed for more than three millennia, not since one of Egypt's most fascinating periods—just after the death of the heretic king Akhenaten, who, unlike his predecessors, worshiped a single deity, the sun god Aten.

The child-size coffin in KV-63 held the flashiest artifact: a second, nested coffin coated in gold leaf. It was empty. Instead of the usual mummies, the other coffins opened so far contain only a bizarre assortment of what appears to be debris and constitute a 3,000-year-old mystery: Why fill coffins and jars with rocks and broken pottery, then carefully seal them up? Why hew out a subterranean chamber only to turn it into a storeroom? And who went to all this effort? "It may not be the most glamorous find," says Betsy Bryan, an Egyptologist at Johns Hopkins University, "but it is a whole new kind of entombment—which raises all kinds of questions."

FOR 400 YEARS beginning around 1500 B.C., the rulers of three powerful Egyptian dynasties built their tombs here in the Valley of the Kings, what they called "The Great and Majestic Necropolis." During the peak of ancient Egypt's wealth and influence, artists and masons carved and decorated miles of underground corridors for the afterlife of some five dozen kings, along with their wives, children and principal ministers. Egyptians filled the tombs with untold wealth, a grandeur only hinted at by the relatively modest grave of Tutankhamen, who died at around age 19 and whose tomb is small and unadorned compared with those of other Pharaohs.

The burials halted abruptly around 1100 B.C.—following the chaotic reign of Ramses XI. After his death, the long-unified Egyptian state broke apart. The valley, once constantly policed, was looted repeatedly over nearly three millennia. No known tomb survived completely unscathed. Even Tut's was rifled more than once before the volatile British archaeologist Howard Carter entered it in 1922, climaxing an obsessive, two-decade search for the young monarch's resting place.

Unlike Carter, Otto Schaden had not been on a search for some spectacular discovery. Starting in the early 1990s, he had labored quietly, exploring the tomb built for a Pharaoh named Amenmesse, who reigned briefly around 1200 B.C. Like most of the others, Amenmesse's tomb had been looted over the centuries, and flash floods eventually filled its passages with debris; it was one of the first in the valley to be explored, in the early 1800s, by European travelers. When Schaden began working on it in 1992, "you had to crawl in on your stomach," recalls Lorelei Corcoran, who directs the Egyptian institute at the University of Memphis in Tennessee, the project's institutional sponsor.

Once most of the tomb was cleaned out, Schaden turned his attention to the area surrounding it. In 2001, he excavated a collection of workmen's huts dating roughly to Amenmesse's time. For three seasons, his team sifted through broken pottery, flint tools and the remains of date palm fruits enjoyed by workers in the makeshift village. But Schaden and his colleagues were not the first to explore the huts. Among the artifacts, they found an empty bottle of Chablis and a *New York Times* dated February 5, 1907, no doubt left by wealthy American archaeologist Theodore Davis who had worked with Carter. Davis had looked under the floors of the easternmost huts for Tut's tomb, but finding only bedrock, he had given up.

"This is the season of discovery," says Zahi Hawass, the chief of Egypt's Supreme Council on Antiquities (right, with Otto Schaden in front of KV-63). Most archaeologists thought that all of the tombs in the Valley of the Kings had been uncovered long ago.

But one small area close to the entrance of Amenmesse's tomb had escaped their attention. "People don't normally look a few yards from one tomb to find another," Schaden explains. "You never know what might be tucked away here," he says, gesturing around the narrow, craggy valley.

One morning in March 2005, a workman probing beneath the floor of one of the huts discovered chips of rock instead of bedrock. Schaden was summoned. Trying to contain his excitement, he began taking photographs, while the excavators watched him, puzzled. "They thought I was crazy because there are white rock chips here everywhere," he says. But the archaeologist had a hunch that *these* rock chips filled a shaft—maybe even a tomb. By the next day, the workmen had indeed found the entrance to a shaft, roughly six feet by five feet. But it wasn't perfectly rectangular; one corner was jagged. Schaden quickly grasped the significance: two other 18th-dynasty valley tombs have similar corners, likely intended to fool robbers looking for a smoothly carved tomb entrance.

Schaden immediately halted work on the shaft to inform Egyptian antiquities officials of the discovery. He was reluc-

DANA SMILLIE / POLARIS

ANDREW LAWLER *wrote about a 450-year-old Spanish fort in North Carolina in the March issue of* SMITHSONIAN.
STAN FELLOWS *is a frequent contributor to the "Digs" column.*

"The Valley of the Kings" is a modern name for the burial ground across the Nile from the city now known as Luxor. The ancient Egyptian name was more poetic: "The Great and Majestic Necropolis of the Millions of Years of the Pharaoh, Life, Strength, Health in the West of Thebes." Tomb entrances were cut into cliffs, hillsides and the valley floor itself. Archaeologists have identified the probable resting places of 41 royals in 37 tombs (some tombs held more than one body), but for many sites the Pharaohs they honored are unknown.
KV34 (Thutmose III)
KV43 (Thutmose IV)
KV14 (Tausert and Setnakht)
KV 10 (Amenmesse)
KV35 (Amenhotep II)
KV 11 (Ramses III)
KV 16 (Ramses I)
KV63
KV 9 (Ramses V and VI)
KV 62 (Tutankhamen)
KV 6 (Ramses IX)
KV 8 (Merenptah)
KV 7 (Ramses II)
KV 5 (Son of Ramses II)
KV2 (Ramses IV)

KENNETH GARRETT / NATIONAL GEOGRAPHIC IMAGE COLLECTION

tant to proceed any further because the digging season was nearly at an end, money was running low and his team was tired. The officials gave him approval to refill the shaft. Waiting from March until the next season began in December to find out where the shaft led may seem like a perverse form of self-denial, but Schaden also needed time to prepare for what he knew was coming. Had he rushed through the dig and found the underground chamber, he says, "things could have gotten out of hand. I didn't want to risk anything getting blown out of proportion."

OTTO SCHADEN is clearly not a man who likes things to get out of hand. He seems, in fact, to model himself more on 19th-century gentlemen explorers than 21st-century scientists. A scrapbook he keeps shows him wearing a pith helmet and a tan outfit, looking like a 19th-century British explorer. "I'm basically a Victorian with a mobile phone," he likes to say.

"They thought I was crazy because there are white rock chips everywhere," says Schaden.

As a child, Schaden had been fascinated by the mummies in Chicago's Field Museum. He studied Egyptology at the University of Chicago's Oriental Institute and made his first trek to Egypt as a student in the 1960s, stopping in Vienna to buy a fluegelhorn, which he played on the boat to Alexandria. In the 1960s and '70s, he worked at sites from Sudan to Giza, but he never landed a full-time academic position in the small and competitive world of Egyptologists. For the past decade, the University of Memphis provided administrative support and an occasional student to help him dig, but no money. He has raised his own

funds from private donors and relies heavily on volunteers who often pay their own way. He gets by on Social Security and earnings from gigs with his Bohemian music band. His tastes are simple. Says his longtime colleague and friend Earl Ertman, a University of Akron art historian: "Otto likes bread and beer."

On Christmas Day 2005, Schaden and his team were back in the valley clearing away the fill they had piled over the shaft nine months before. As they dug down, they could tell from layers of sediment that the shaft had been cut and filled sometime before the construction of the workers' huts. By February 5, the ancient shaft was almost clear; stones and rubble still blocked the entrance to a chamber, but there was a small opening at the top, "so tiny you could barely get a flashlight in," Schaden recalls. Peeking through the opening, Heather Alexander, a team photographer, thought she spotted a coffin. Alistair Dickey, an Irish archaeologist, also took a look. "I see pots!" he shouted. "I see pots!"

The February 10, 2006, announcement by Zahi Hawass, chief of Egypt's Supreme Council on Antiquities, of the find made headlines around the world, shattering Schaden's calm. Within days, he had enlarged the hole, revealing coffins and many jars—though none of the boxes or chests typical of unplundered royal tombs, nor royal insignias. Unlike Tut's tomb nearby, this one held no gold mask, no gilded furniture, no delicate statues.

On February 13, Schaden picked his way across a rubble-littered chamber floor to get his first close-up look at the coffins. Four had been badly eaten by termites, but three appeared to be in good condition. All were covered in black resin ; on four of them, yellow faces had been painted and one featured glass-inlaid eyes and eyebrows.

After clearing the rubble away and collecting all loose artifacts, the crew jury-rigged a pulley system to hoist the 28 massive jars, each of which weighed 100 to 150 pounds, 18 feet to the surface. The first dozen jars to be opened contained a mix of pottery, mud seals, wood, cloth and natron. ("Very strange," says Schaden.)

Over several months, Egyptian conservators consolidated the artifacts and removed some of the seven coffins from the tomb. Researchers used small spoons to remove the natron. Pottery fragments and rock were wrapped in cloth for future study. Some of the coffins looked nearly new. Because the team has to excavate and document the coffins one at a time, one remains sealed. "The wood of that one is in good shape," Schaden says. "I even knocked on it when I could get close enough."

The bizarre assortment of funeral goods was well protected. The entrance shaft, which descends some 18 feet, had been filled with rock. Above, left: Schaden and colleagues get their first peek into the tomb after the shaft was partially emptied. Above, center: The view into the shaft from ground level. Above, right: Otto Schaden enters the tomb for the first time. Seven coffins, some termite-damaged but others remarkably well preserved, were piled in a corner, surrounded by 28 giant ceramic jars.

Some clues link the cache to Tut's time. One jar held wine residue similar to that found in the boy-king's tomb. "Either the material is from his burial, or it is from someone buried soon before or soon after or during his reign," Schaden says. And some of it looks remarkably similar to about 20 jars found by Davis in 1906 in pit KV-54; they held pottery, cloth, natron and other materials believed to have been used to embalm Tutankhamen. "If I didn't know that KV-63 had been sealed since the 19th dynasty," says Schaden, "I'd have sworn that Davis dumped some of the material from the pit here."

What seems clear is that someone in the New Dynasty gathered up the items in KV-63 quickly. Perhaps even in haste: shards from a single pot are distributed haphazardly

HEATHER ALEXANDER; GEORGE JOHNSON (2)

in various coffins or jars. "All the stuff had to be kept together," says Brock, who served as co-director on the project until April.

Since the undisturbed chamber is apparently not a proper burial tomb, what is it? There are two main possibilities, says Corcoran. The materials may have come from an embalming studio, which used natron, incense and jars similar to the ones found in KV-63. Or they may have come from a burial that had been somehow defiled.

Alistair Dickey, an Irish archaeologist, took a look through the small opening. "I see pots!" he shouted.

Some scholars speculate that the cache might be tied to the upheavals surrounding the heretic king Akhenaten, who not only abandoned the old gods to worship Aten alone but also built a new capital—along with new cemeteries—at Amarna, about 250 miles north of the Valley of the Kings, along the Nile River. Upon Akhenaten's death, his successor—young Tut—abandoned Amarna and monotheism and reinstituted the old ways. Perhaps there was confusion over what to do with those royal personages who had been buried in the forsaken capital. "People were trying to deal with where they should be buried, and how," says Bryan of Johns Hopkins. Some mummies apparently were transported to the Valley of the Kings. And, says Corcoran, hieroglyphs on a broken seal found amid the debris in KV-63 names the sun god Aten. But whether the chamber was actually dug during that disruptive period has yet to be determined.

Schaden seems surprisingly disengaged from all the speculation—and even from the excitement of following in Carter's footsteps to uncover the first valley tomb in nearly a century. Instead, he worries about missing a gig with his band this summer. "I'm having very little fun," he tells me when I call him in May. Most of his volunteers have gone home, and his relations with the University of Memphis are chilly. After years of leaving Schaden alone, the university dispatched Corcoran, an experienced art historian, to join Schaden at the dig. "There are too many cooks in the kitchen," Schaden says. Corcoran declines comment.

Call it the curse of the Valley of the Kings. Carter also found the relentless media spotlight irritating, fought bitterly with his sponsor, Lord Carnarvon, and chafed under the critical eyes of other archaeologists. But the gentlemanly Schaden seems particularly ill-prepared for the maelstrom he unleashed. His go-slow approach, his reluctance to face the media onslaught and his failure to field the requisite conservators and artists immediately after the tomb was opened have annoyed some colleagues.

As we sit on plastic chairs in the shade of Amenmesse's tomb, Schaden appears almost melancholy. He seems to yearn for his earlier, less complicated life, when he could putter in peace. He fiddles with two broken bits of pottery that had been sealed in a jar for well over three millennia. "There, it fits," he says, sliding them together with a small smile.

Egyptologists are still trying to make sense of the artifacts found in tomb KV-63 (above, left, an improvised pulley system brings a ceramic jar to the surface; above, center, a coffin in the tomb). Were the objects used during a funeral ceremony? Or did they touch a Pharaoh's body during embalming? In either case, the relics may have been considered too sacred to discard. The coffins opened so far contain mysteries, but no bodies (above, right, a 16-inch-long gold-leaf coffin once sealed in a wooden coffin).

ROXANNE WILSON; DANA SMILLIE / POLARIS; DISCOVERY CHANNEL

Visit Smithsonian.com for more images from the tomb.

Antone Minthorn, Confederated Tribes of Umatilla Indian Reservation

THE OREGON CONSERVATIONIST

SUPPOSE A RIVER DRIES UP AND TAKES BEAUTIFUL SALMON WITH IT, AND SUPPOSE THERE'RE LOTS OF PEOPLE WHO REALLY CARE ABOUT THEIR RIVERS AND THEIR SALMON AND WILL DO ANYTHING TO BRING THEM BACK—EVEN FORGET THEIR DIFFERENCES—WELL THEN YOU'D BE TALKING ABOUT THE PEOPLE IN OREGON AND HERE'S THEIR STORY.

Once upon a time there was an Indian tribe who lived in synch with the cycle of the Umatilla River in Oregon. For thousands of years, the river told them when to hunt deer, when to pick huckleberries, when to dig for roots—the river was very bossy. But the most important thing the river did was fill up with big, beautiful salmon. But one day the river began to quiet down and eventually the salmon disappeared. So the Umatilla Tribe did what every good Oregonian would and set out to bring back their river. They went to the nearby farmers who had been using water from the river for their crops and asked for their help. Now, they could have argued back and forth about whose water it was but of course they both knew that if one had fish and the other did not have crops, the fish would not taste truly satisfying. And if one had crops and the other did not have fish, the crops would not grow so proudly. So they instead did things the Oregonian way: They worked together and didn't stop until they found a solution. And now when you visit the Umatilla in Oregon, you will hear the river barking orders loudly once again—along with occasional whispers of, "It's good to be back."

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Finding a Home in the Cosmos

In a new book written with his wife, Nancy Abrams, cosmologist Joel Primack argues that the universe, far from being a meaningless void, was meant for us. Sort of **BY JERRY ADLER**

FOR THE PAST 400 YEARS, says cosmologist Joel Primack, the measure of intellectual sophistication about the universe was acceptance of our own planet's insignificance within it. The Earth, ousted by Copernicus from the center of the heavenly spheres and tamed in its motion by Newton's laws, had shrunk to a speck by the last century, lost in a universe that grew larger each time humans pointed a telescope at it. Most people who don't get their cosmology from the Bible have assimilated this idea into their worldview—which is why it's a little surprising that an impeccably credentialed scientist like Primack has written a book, with his wife, Nancy Ellen Abrams, called *The View From the Center of the Universe*. The center, they say, is right where you are.

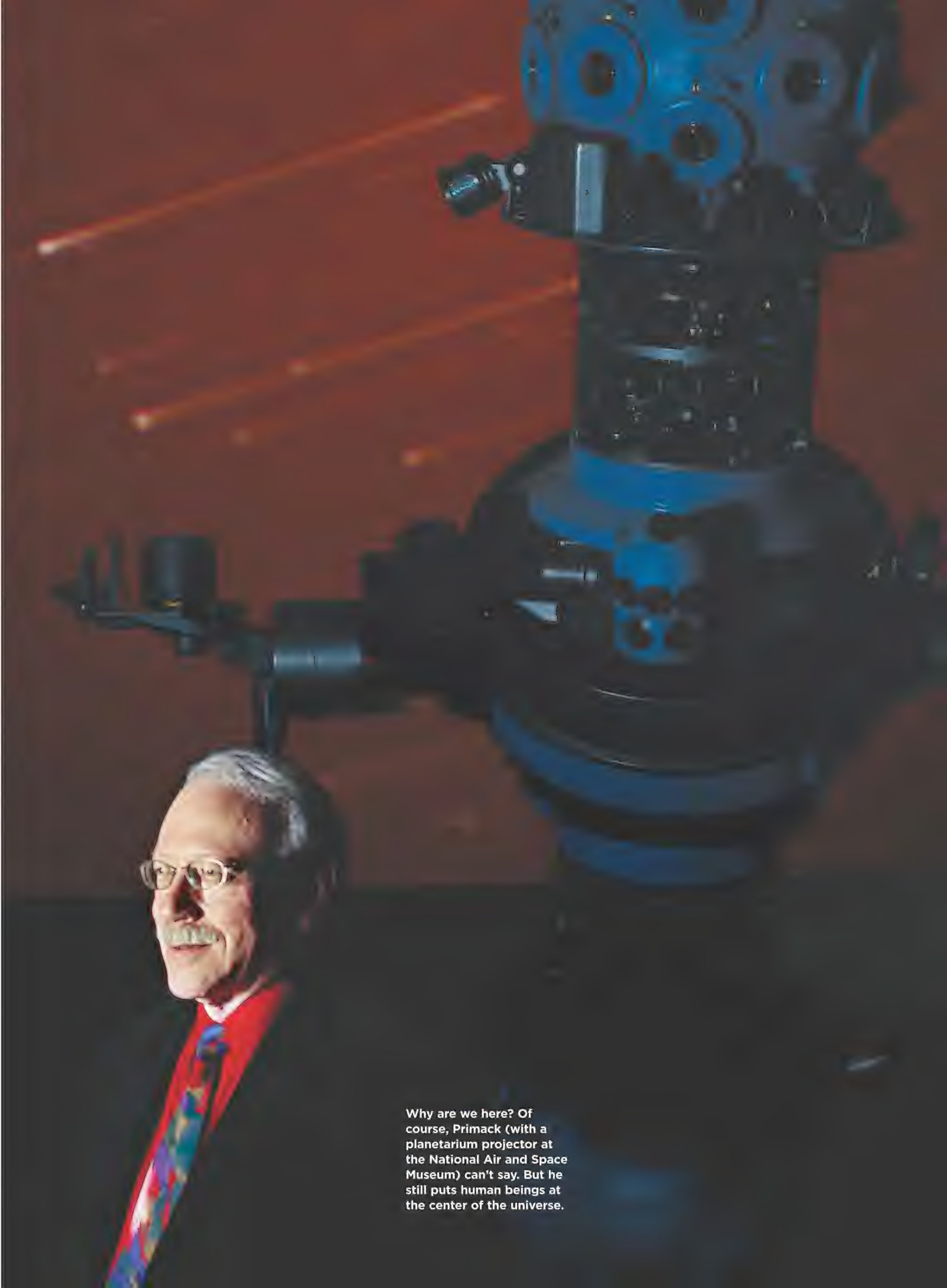
Primack, whose field, cosmology, lies at the intersection of particle physics and astronomy and is at the very margins of human comprehension, was one of the pioneers of the "cold dark matter" theory to account for the invisible mass whose gravity holds galaxies together. He is 60, trim, mild-mannered, with silvery hair and matching mustache. Raised largely in Southern California, he attended Princeton and Stanford before joining the faculty at the University of California at Santa Cruz, a campus in a hillside redwood grove. Abrams is a writer, musician and, by temperament, a philosopher, occupying a privileged position in a thrilling scientific dialogue about the nature of the universe *without having to learn integral calculus*. Slender, with a dark, piercing gaze, Abrams appears in the guise of a New Age priestess on the cover of her most recent CD, "Alien Wisdom," posed against a backdrop of stars, suspending the Earth between her outstretched hands.

Primack was a particle physicist who became interested in cosmology in the late 1970s, coinciding with the field's transformation by inflation theory and supersymmetry. The former is the idea that for a tiny fraction of a second at the beginning of the Big Bang the universe expanded faster than the speed of light, creating random energy fluctuations that eventually became the large-scale structures of galaxies, galaxy clusters and superclusters. The latter is a theory that relates the properties of particles of force and matter, giving rise to predictions about invisible, or "dark," matter. Primack has lived through, and participated in, what he considers one of the great achievements of human intellect: the unification of experiment, observation and theory in a mathematically consistent account of the 14-billion-year history of the universe. "There are still a lot of unsolved problems, but all the data fits together," Primack says. "We cosmologists have been congratulating ourselves that we finally got the story right. But that's something that the public doesn't appreciate."

If laypeople don't appreciate it, that's partly because unsolved problems still loom large. The nature of "dark matter," of which there seems to be vastly more than ordinary visible matter, is still conjecture. There is not even a

Primack has lived through, and participated in, what he considers one of the great achievements of the intellect.

P. 73 COMPOSITE PHOTOGRAPH BY WILLIAM COUPON



Why are we here? Of course, Primack (with a planetarium projector at the National Air and Space Museum) can't say. But he still puts human beings at the center of the universe.

convincing conjecture about the nature of "dark energy," which propels the ongoing expansion of space. But another reason for the incomprehension, Primack and Abrams believe, is that people who can't follow the math have no convenient way to think about these things—no way, that is, to relate these discoveries to the macroscopic, earthbound realm of human perception. *The View From the Center of the Universe*—a meditation on our place in a universe comprising a hundred billion galaxies of a hundred billion stars—is their attempt to fill that need.

The center of the universe is not, of course, a geometric point in space, but a metaphor for humanity's place in the cosmos. Consider, Primack and Abrams write, that the physical size of human beings is roughly midway on the logarithmic scale between the so-called Planck length—the smallest meaningful increment of distance, about 10 to the minus 33 centimeters, and the distance to the edge of the visible universe, the largest meaningful distance, about 10 to the 28 centimeters. Much smaller creatures than we are could not develop the complexity necessary for intelligence; much larger ones would be limited by the time it takes information to travel across their brains. Earth also happens to occupy a privileged niche of habitability—neither too close to the Sun nor too far, protected by Jupiter's gravity from collisions with comets, locked by the Moon into a stable orientation that provides predictable seasons. If our solar system were very much closer to the center of our galaxy, cosmic rays from nearby stars might have made life impossible; very much farther out on the edge, and the heavy elements that make up the Earth (and living creatures) might have been too sparse. And so on. There are two ways to respond to these observations: you can shrug and say, *so what? If any of those things were different, we wouldn't be here to notice anyway, so their apparently miraculous coincidence is an illusion.* Or you can find in them a source of wonder and inspiration. "There is no deeper source of meaning for human beings," Primack and Abrams write, "than to experience our own lives as reflecting the nature and origin of the universe."

Exactly what that meaning consists of is, however, "a tremendous open question," they say, something that can only be apprehended dimly, speculatively, metaphorically. They denounce what they call the existential, or nihilist, view of life as just a flicker of awareness in an indifferent universe. But in their effort to create a philosophy that draws on the entirety of space and time, Primack and Abrams quickly run up against the limits of what human beings can, even in principle, know. We may, as the authors say, be participants in a great cosmic story "as far beyond our imagination as that which atoms and cells are playing for us." But confined to our middling place in the range of possible size scales, how would we know? Primack and Abrams don't even speculate on what that cosmic drama might be. In the final chapter of their book they pose for themselves the straightforward question many readers will be asking: Do they believe in God? The answer takes up several dense paragraphs, ending in the assertion that they "believe in God as nothing less than the process of opening our personal lines of contact with the unknown potential of the universe"—a sentence that the word "unknown" transforms from merely insubstantial to, well, empty.

"Humans are not merely a random growth on the surface of a small planet of an average star," say Abrams and Primack (in their Santa Cruz, California home). Their book offers a nonsectarian blend of cosmology and philosophy.

They denounce the existential, or nihilist, view of life as just a flicker of awareness in an indifferent universe.

So are they mystics, spiritualists, Buddhists? To be sure, Primack's work is as grounded in empirical results as theoretical physics can be. Physics informs even Abrams' songs, which are really more like poems set to music. Her CD track *The Handwriting of God* must be the only ballad ever composed about the cosmic background radiation from the Big Bang. In the couple's home, on a hillside overlooking Monterey Bay, there are several telescopes but no healing crystals or pyramids on view. They celebrate New Year's Day with a confection they call the Cosmic Dessert, symbolic of the distribution of mass energy in the universe: 70 percent chocolate cake, representing dark energy; 25 percent chocolate ice cream (for cold dark matter); and the rest other stuff, including a tiny pinch of cinnamon, which stands for the heavy elements forged in stars—in other words, most of what constitutes life. But on Friday nights Abrams lights candles and says a prayer in the ancient fashion of Jewish women since time immemorial. Not, Primack says, because they really believe anyone is listening. Then he catches himself and says: "I'm listening."

JERRY ADLER *is a senior editor at* Newsweek. *The photographer* **WILLIAM COUPON**, *making his first appearance in this magazine, is working on a book of his portraits.*

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Wild in t

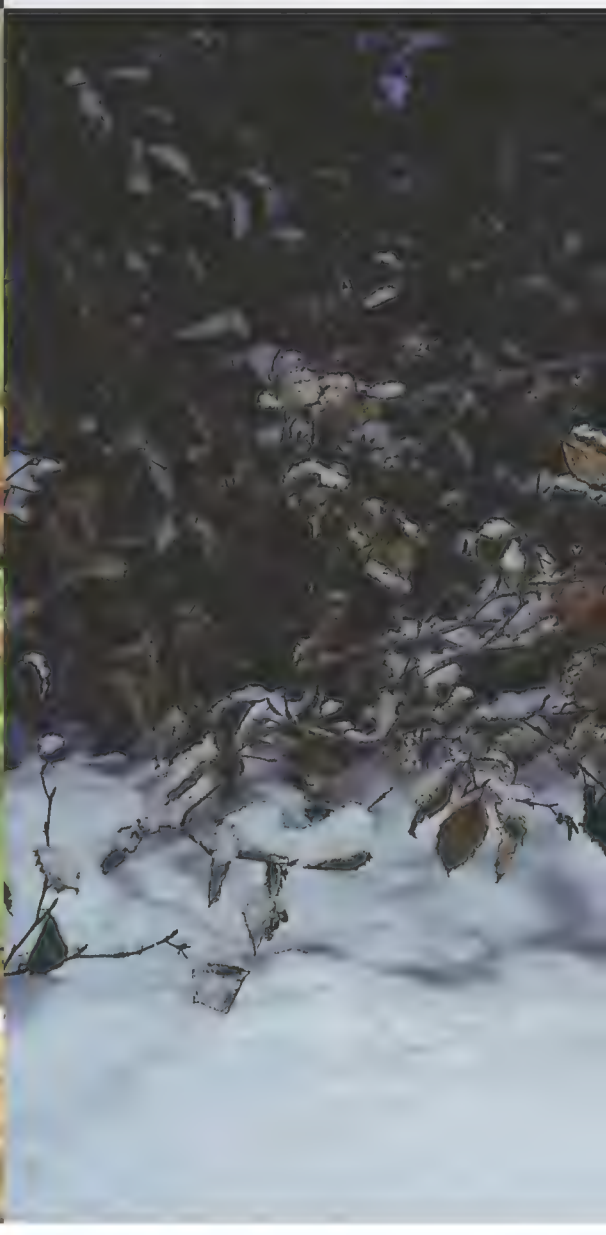
A vast unspoiled area abounding in wildlife (a gyrfalcon at the Snake River, July 2004), this northern Yukon watershed is also being eyed by oil and gas companies for drilling—a step that many environmentalists oppose.

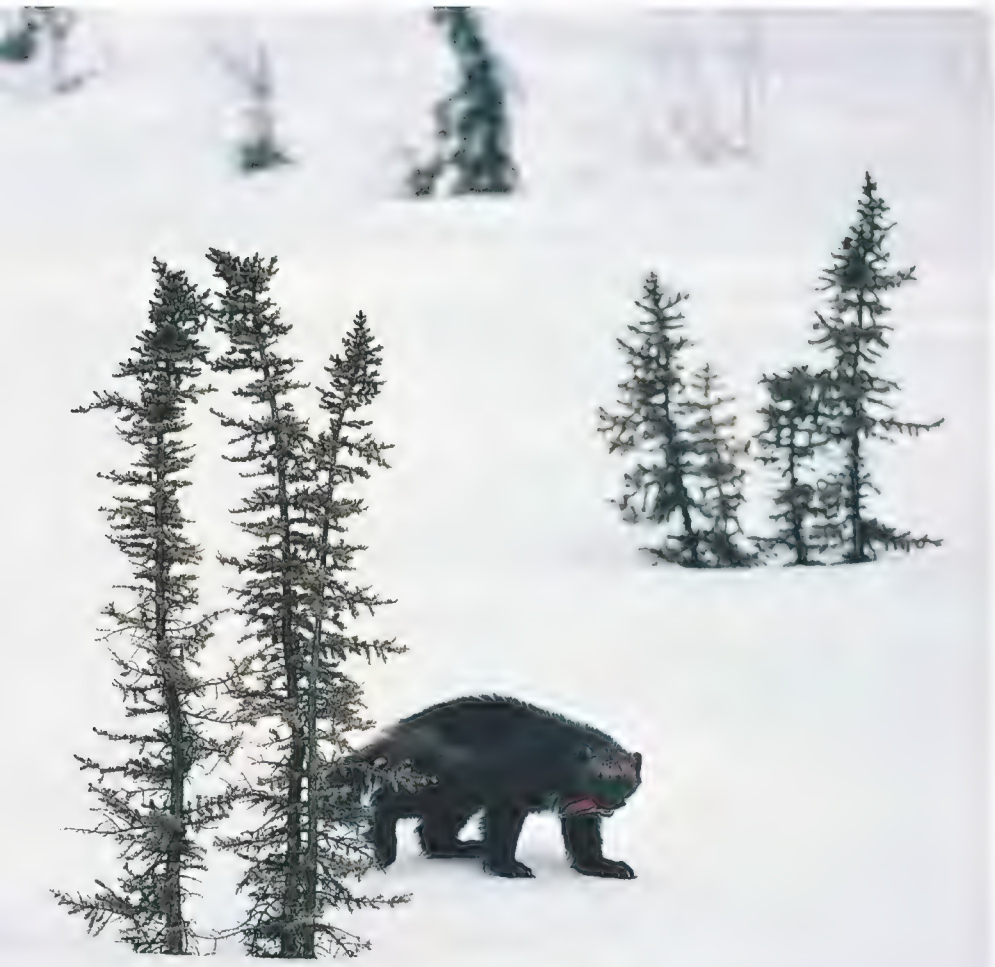
The Yukon

A Danish photographer goes farther than the extra mile to document wildlife in one of North America's most remote, pristine areas, now coveted by mining and oil companies

PHOTOGRAPHS BY JANNIK SCHOU
TEXT BY FRANK CLIFFORD

ORIGINATING JUST OUTSIDE the Arctic Circle in Canada's Yukon Territory, the Snake River winds through the northern reaches of the great boreal forest, a green girdle stretching from the Atlantic to the Pacific that is the breeding ground for 43 percent of North America's birds. From the headwaters of the Snake, it is about 200 miles to the nearest highway and an hour and a half by floatplane to the nearest settlement. There is nothing so remote in the lower 48, where the farthest point from a road—the southeastern corner of Yellowstone National Park—is little more than 20 miles.





The Snake is part of the Peel River Watershed, one of the largest areas of the North still virtually untouched by humanity. With 28,000 square miles (larger than West Virginia), the area's terrain varies dramatically, from the talus slopes of the Wernecke Mountains to spruce-choked river valleys, and it is home to Dall sheep, moose, caribou, grizzly bears, wolves, foxes, wolverines and nearly 100 species of birds. The area's aboriginal people were hunters and gatherers who moved around in small family groups, stalking mountain caribou in the winter and living in fishing camps along the rivers in summer. Their descendants, the Tetlit Gwich'in and the Na-Cho Nyak Dun First Nations, have settled, among other places, in two small communities, Fort McPherson and Mayo, on the periphery of the Peel River Basin. Europeans first explored the region in 1839.

Along the Snake River today, the human residents are seasonal, mostly hunting parties, canoeists and river rafters; wildlife biologists; and prospectors for oil, gas and uranium.

And then there is the photographer Jannik Schou. He has spent seven years in the Yukon bush, the last two focused on the Snake River environs. Schou and his partner, Gill Cracknell, fly in on a skiplane in April, landing on a frozen lake with enough supplies to last until September. Going from one base camp to another, they walk, canoe and sled about 60 miles a month.

The Danish-born Schou has endured –40 degree temperatures to photograph some of the Yukon's most reclusive inhabitants: lynx and wolverine. But his signature works are resplendent close-ups of eagles and falcons. Last summer, he tracked a pair of gyrfalcons to their aerie in a cave high on a mountain ledge. He placed a remote-controlled camera in a camouflaged box and waited days for the falcons and their young to grow comfortable with the camera and with him. Finally they did. He's not always so lucky. He and Cracknell spent two weeks building a 60-foot-high scaffold to photograph a bald eagle's nest, only to have the birds relocate. "I've spent countless hours waiting in blinds," he says, "checking light meters and swatting mosquitoes, wondering what went wrong with my life."

Still, he returns. "I was watching a wolverine bounding along on the snow crust in his tireless gait toward a distant horizon," he recalled in an e-mail from his winter home in Denmark. "I couldn't think of a better place to be."

Photographer Schou (above) has spent several years in the Yukon bush, typically flying to remote spots on a skiplane. The region includes part of the great boreal forest, the world's largest still intact forest. It covers 10 percent of the earth and is the breeding ground of more than 40 percent of North America's migratory birds. Clockwise from top left: Moose rut near the Snake River, September 2005. A wolverine scavenges for carrion in central Yukon, April 2002. A lynx approaches, January 2002. A shorteared owl guards her brood, July 2005.

"We can't stop the world," official John Spicer says of proposals to develop parts of the area. Critics fear industry's impact on water and animals (a pine marten, January 2002).

I met Schou in the Yukon a few years ago when he was picking up supplies from a floatplane that had taken me to the Snake River. I was part of a group of writers and artists on a three-week river journey led by conservationists, including Gwich'in and Na-Cho Nyak Dun people. They wanted to call attention to a unique wilderness suddenly facing the prospect of development or exploitation by oil and natural gas industries. The environmentalists are trying to block industrial activity in the heart of the Peel Watershed, a 12,000-square-mile area where the Snake, Wind and Bonnet Plume rivers pour out of the Wernecke Mountains through a cinematic landscape of limestone massifs, hanging glaciers, forested lowlands and serpentine canyons.

It wasn't long ago that energy and mineral reserves in the Peel region were considered stranded assets, too remote and too costly to pursue. But technology and society's appetite for natural resources are opening up the Far North. By 2050, up to 80 percent of the world's arctic environs could be subject to mining, oil and gas exploration or other industrial activity, according to a 2001 report of the U.N. Environment Programme. Juri Peepre, a former director of the Yukon chapter of the Canadian Parks and Wilderness Society, says "the new rush for black gold and natural gas is on, and a wave of drilling pads, pipelines and compressor stations is moving north."

The Yukon's territorial government has given permission to a Canadian subsidiary of Dallas-based Hunt Oil to look for oil and gas in the Peel Watershed. "Certain exploration and development activities can proceed," says John Spicer, director of corporate policy and land claims for the Yukon's Department of Energy, Mines and Resources. "We can't stop the world and put it on hold."

The conflict in the Yukon is reminiscent of Alaska's epic battle over oil drilling in the Arctic National Wildlife Refuge. Indeed, the Peel Watershed is the wintering ground for the same caribou herd that migrates hundreds of miles north to bear their young in the Alaskan refuge.

When you see a caribou and her calf wade nonchalantly in front of your oncoming canoe, or watch the unhurried gait of a grizzly observing your passage from a nearby embankment, or look into the gleaming eyes of a wolf calmly surveying your camp, it still feels as if human beings have not established dominion here. Schou, blending in as few others have, has captured the essence of this rare place.

FRANK CLIFFORD, *a* Los Angeles Times *editor, is the author of* The Backbone of the World, *about the continental divide. Photographer* **JANNIK SCHOU** *lives in Denmark and the Yukon.*

Why is horticulturalist Harry Jan Swartz so determined to grow an exotic strawberry beloved by Jane Austen?

BY DAVID KARP

Berried Treasure

THERE'S SOMETHING CURIOUS going on at the pick-your-own strawberry farm amid the bland expanse of tract homes and strip malls southwest of Miami. In row after row on the ten-acre property, the plants appear uniform, but in a far corner set off by a line of habanero chili vines, each strawberry plant has a slightly different color and growth pattern. This is a test plot where a stubborn University of Maryland horticulturist named Harry Jan Swartz is attempting to breed a strawberry unlike any tasted in the United States for more than a century. He's searching for what may be the most elusive prize in the highly competitive, secretive, $1.4 billion-a-year strawberry industry—marketable varieties with the flavor of *Fragaria moschata*, the musk strawberry, the most aromatic strawberry of all.

Native to the forests of central Europe, the musk strawberry is larger than *fraises des bois*, the tiny, fragrant, wild alpine strawberries beloved by backyard gardeners, and smaller than the common strawberry, the supermarket-friendly but often dull-tasting hybrid that dominates sales worldwide. The musk strawberry has mottled brownish red or rose-violet skin, and tender white flesh. Its hallmark is its peculiar floral, spicy aroma, different from and far more complex than the modern strawberry's, with hints of honey, musk and wine; a recent analysis by German flavor chemists detected notes of melon, raspberry, animal and cheese. Adored by some people, detested by others, the aroma is so powerful that a few ripe berries can perfume a room.

P83 GEORGE BROOKSHAW / GRANGER COLLECTION; ALL OTHERS DAVID KARP

"I have the religion of moschata," says Harry Swartz (opposite, in his Miami-area test garden) of the rare strawberry breed he has long tried to develop. Today's supermarket-friendly berries have all but supplanted older, more delicate species such as moschata (top left, in an 1804 illustration), Chilean (top right), Virginian (bottom right) and alpine.

From the 16th to the mid-19th centuries, the musk strawberry—known as *moschuserdbeere* in Germany, *hautbois* in France and hautboy in England—was widely cultivated in Europe. In Jane Austen's *Emma*, guests at a garden party rave about it: "hautboy infinitely superior—no comparison—the others hardly eatable." But because growers in those days did not always understand the species' unusual pollination requirements, musk cultivations typically had such scanty yields they seemed virtually sterile. Thomas A. Knight, an eminent horticulturist and pioneering strawberry breeder, wrote in 1806: "If nature, in any instance, permits the existence of vegetable mules—but this I am not inclined to believe—these plants seem to be beings of that kind." Also, the berries are very soft, so they don't keep or travel well. By the early 20th century, musk varieties had mostly disappeared from commercial cultivation, replaced by firmer, higher yielding, self-pollinating modern strawberries.

But the legend of the musk strawberry persisted among a few scientists and fruit connoisseurs. Franklin D. Roosevelt, who became enamored of its musky flavor as a boy traveling in Germany, later asked his secretary of agriculture and vice president, Henry A. Wallace, to encourage government strawberry breeders to experiment with musk varieties at the Agriculture Department's breeding collection in Beltsville, Maryland. It was there, in the early 1980s, that the musk aroma captivated a young professor at the University of Maryland, in nearby College Park.

After years at the forefront of berry science, Swartz in 1998 launched an audacious private program to overcome the biological barriers that had thwarted breeders for centuries. "If I can grow a huge, firm fruit that's got the flavor of moschata," Swartz told me a few years ago, "then I can die in peace."

On this unusually chilly January dawn outside Miami, we're checking up on his dream at his test plot next to a weed-choked canal. Swartz, 55, is wearing a black polo shirt and chinos. He is shivering. He bends over and examines a plant, ruffling the leaves to expose the berries. He picks one, bites into it. "Ugh." He makes notes on a clipboard. He tries another, and wrinkles his nose. "That's what I call a sick moschata." The fruit has some of the elements of musk flavor, he explains, but with other flavors missing or added, or out of balance, the overall effect is nastily deranged, like a symphony reduced to cacophony.

Before the day is done Swartz will have scoured the test patch to sample fruits from all 3,000 plants, which are seedlings grown from crosses made in his Maryland greenhouse. They belong to his third generation of crosses, all ultimately derived from wild strawberry hybrids devised by Canadian researchers.

Swartz keeps tasting, working his way down the seven

DAVID KARP, *a freelance writer and photographer specializing in fruit, is working on a book about fruit connoisseurship.*

He picks one, bites into it. "Ugh." He makes notes. He tries another, and wrinkles his nose.

Bigger? Firmer? To breed strawberries with desirable traits, Swartz does high-touch crosses. Above, he scrapes pollen-laden anthers into a bag. Opposite, he dabs pollen onto a flower to fertilize a plant that may yield a new breed of seed.

rows of plants sticking out of the white-plastic covered ground. "Floor cleaner," he says of one. "Diesel." "Sweat socks." He is not discouraged—yet. For many years, until his knees gave out, Swartz was a marathon runner, and he's in this project for the long haul, working test fields from Miami to Montreal in his unlikely quest to discover a few perfect berries.

"You've got to kiss a lot of frogs in order to find a princess," he says.

THE MODERN CULTIVATED STRAWBERRY is a relative newcomer, the result of chance crosses between two New World species, the Virginian and the Chilean, in European gardens starting about 1750. This "pineapple" strawberry, called *F. x ananassa*, inherited hardiness, sharp flavor and redness from the Virginian, and firmness and large fruit size from the Chilean. In the 19th century, the heyday of fruit connoisseurship, the best varieties of this new hybrid species (according to contemporary accounts) offered extraordinary richness and diversity of flavor, with examples

evoking raspberry, apricot, cherry and currant.

Alas, no other fruit has been so radically transformed by industrial agriculture. Breeders over the decades have selected varieties for large size, high production, firmness, attractive color and resistance to pests and diseases; flavor has been secondary. Still, fresh strawberry consumption per capita has tripled in the past 30 years, to 5.3 pounds annually, and the United States is the world's largest producer, with California dominating the market, accounting for 87 percent of the nation's crop.

What's missing most from commercial berries is fragrance, the original quality that gave the strawberry genus

its name, *Fragaria*. To boost aroma, strawberry breeders, particularly in Europe, have long tried to cross alpine and musk varieties with cultivated ones, but with little success. Only in 1926 did scientists discover why the different species are not readily compatible: the wild and musk species have fewer sets of chromosomes than modern strawberries. As a result of this genetic mismatch, direct hybrids between these species typically produced few fruits, and these were often misshapen and had few seeds; the seeds in turn usually did not germinate, or produced short-lived plants.

Strawberry science took a big leap forward in Germany, starting in 1949, when Rudolf and Annelise Bauer treated young seedlings with colchicine, an alkaloid compound in meadow saffron, to increase the number of chromosomes in hybrids of alpine and common strawberries, producing new, genetically stable varieties. Over the years, some breeders have taken advantage of this method to create new hybrids, including a cultivar introduced last year in Japan that has large but soft pale pink fruit with a pronounced peach aroma. Such attempts have often run into dead ends, however, because the hybrids are not only soft but cannot be further crossed with high-performing modern varieties.

To be sure, there's still one place where the original musk strawberry survives in farm plantings, although on a very small scale: Tortona, between Genoa and Milan, where the Profumata di Tortona strawberry has been grown since the late 17th century. Cultivation peaked in the 1930s, and lingered into the 1960s, when the last field succumbed to urban development. Until a few years ago only a few very small plots existed in old-timers' gardens, but recently the municipal authorities, together with Slow Food, an organization devoted to preserving traditional foodways, started a program that has increased Profumata plantings to more than an acre, on nine farms. These pure musk berries are a luxurious delicacy, but they're expensive to pick and very perishable—a prohibitive combination for commerce. In the United States, most growers would sooner raise wombats than fragile strawberries, no matter how highly flavored.

SWARTZ SAYS HE CAME TO LOVE strawberries as a child in the Buffalo, New York, gardens of his Polish-born grandparents. He majored in horticulture at Cornell, and after finishing his doctoral research in 1979 on apple dormancy, he started teaching at the University of Maryland and helped test experimental strawberry varieties with U.S. Department of Agriculture researchers Donald Scott, Gene Galletta and Arlen Draper—giants in the breeding of small fruits.

Swartz conducted trials for the 1981 release of Tristar, a small but highly flavored strawberry now revered by Northeastern foodies; it incorporates genes for extended fruiting from a wild berry of the Virginian species collected in Utah. But he chose to go his own way and concentrate on raspberries. Working with other breeders, and often using genes from exotic raspberry species, he has introduced eight raspberry varieties, of which several, such as Caroline and Josephine, proved quite successful.

Swartz, who is married to his college sweetheart, Claudia—she and their 23-year-old daughter, Lauren, have had raspberry varieties named after them—has been described by colleagues as a "workaholic," a "visionary" and a "lone wolf." For many years he participated in professional horticultural organizations, attending meetings and editing journals, but in 1996 he gave all that up to focus on fruit breeding. "I can't put up with a lot of academics," he says. To pursue opportunities as he saw fit, Swartz in 1995 formed a private company, Five Aces Breeding—so named, he says, because "we're trying to do the impossible."

Swartz is working on so many ventures that if he were younger, he says, he would be accused of having Attention Deficit Disorder. He's helping develop raspberries that lack anthocyanins and other phytochemicals, for medical researchers to use in clinical studies assessing the effectiveness of those compounds in fighting cancer. He's an owner of Ruby Mountain Nursery, which produces commercial strawberry plants in Colorado's San Luis Valley, possibly the highest—at an elevation of 7,600 feet—fruit-related business in the United States. He's got a long-term project to

cross both raspberries and blackberries with cloudberry, a super-aromatic arctic relative of the raspberry. And he recently provided plants for a NASA contractor developing systems for growing strawberries on voyages to Mars.

His musk hybrid project relies on breakthroughs made by other scientists. In 1998, two Canadian researchers, J. Alan Sullivan and Bob Bors, allowed him to license their new strawberry hybrids, bred using colchicine, from a diverse range of wild species, including alpine and musk strawberries. (Sullivan and Bors, after years of experimentation, had created partially fertile musk hybrids with the requisite extra chromosomes.) Swartz's breeding strategies

Swartz (holding some of his experimental hybrid moschata strawberries) says his "holy grail" is a hybrid with the breed's exotic musky flavor and aroma that is also hardy enough for U.S. markets. He predicts it's no more than a few years away.

can be idiosyncratic. Like an athlete training at high altitude to boost his stamina, he deliberately chooses difficult growing environments (such as sultry Miami) for his test plots, so that successful varieties will be more likely to excel in more temperate commercial growing districts. His main challenge with the musk hybrids is to increase their size and firmness, so they can be picked and marketed economically. It's a trade-off. Strawberry plants produce limited amounts of photosynthates, which they use for high yield, firmness or sweetness. "You move one up, the others are going to move down," says Swartz, "and it's very rare that you can have all three qualities."

WALKING THE ROWS at his Miami test plot, Swartz shows me a puny, malformed fruit, which lacks seeds on one side. "That's what 99 percent of them used to look like a few generations ago," he says. "For years I'd be eating sterile, miserable things, nubbins with two or three seeds." The hormones produced by fertile seeds, he explained, are needed for proper development of the strawberry, which is actually a swollen receptacle, the end of the flower stalk. Still, he would grind up even the most unpromising fruits, take the few good seeds and grow them as parents for future generations.

Could he show me a large-fruited strawberry with full musk flavor? Through seven years of crossing the original Canadian hybrids with cultivated varieties, the musk genes have become increasingly diluted, and it has been hard to retain the sought-after aroma. Typically, only one in 1,000 seedlings offers it, and I've heard that he's nervous we might not find any that do.

But after an hour or so, he picks a medium-sized, conical berry and bites into it. "That's moschata!" From the same plant I choose a dead-ripe fruit. It has an almost mind-bogglingly powerful, primeval aroma. Swartz ties an orange ribbon around the plant, to mark it for use in future crosses, and beams like an alchemist who has found the philosopher's stone.

By late afternoon it's pleasantly balmy, but Swartz is wearing down. He says his knees ache. His fingers are stained winy red. "I'm starting to lose it, frankly," he says. "I've had too many strawberries." What would drive him to spend his own money and more than a decade tasting roughly 100,000 berries, many of them dreadful, with the prospects for reward uncertain? "It's just a stupid donkey attitude—*I've got to do this or else there's no reason for me to do anything*. I have the religion of moschata."

By the second morning of my Florida visit, Swartz has identified three musk hybrids with promising characteristics. From one plant, he clips runners and wraps them in moist paper towels; he'll take them back to his greenhouse in Maryland and propagate them into genetically identical offspring—clones. From another plant he plucks unopened flowers, pulls off the pollen-coated anthers and drops them into a bag, for direct use in pollinating other plants to make new crosses. "It's really cool," he says. "After seven years of hard work, I can actually eat this and show people—here's a large-sized fruit with this flavor."

This past spring, Swartz says he made further progress at a test plot in Virginia after he crossed a bland commercial strawberry with his hybrids and obtained more new plants with good moschata flavor. Swartz says he's about three or four years from developing a musk hybrid with commercially competitive yield, size and shelf life. Still, he may have a hard time bucking the American fruit marketing system's demand for varieties that appeal to the lowest common denominator of taste. But he has always been motivated less by financial gain than by curiosity, the promise of a bit of adventure—and a touch of obsession. "I really don't care if this works or not, it's just so much fun getting there," he says. "When it happens, it'll be, 'I've found the holy grail, now what do I do with it?'"

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Pamplona No Bull

Forget Hemingway's bovine madness: this charming medieval town hosts the most misunderstood public party in the world — the festival of San Fermin

BY ERLA ZWINGLE PHOTOGRAPHS BY TINO SORIANO

THE FIESTA of San Fermin in Pamplona, which mixes a saint who may not have existed, an audacious American writer attracted to danger, and six wild bulls charging down the main street, may be the most famous and most misunderstood public party in the world.

The running of the bulls is what everyone knows about Pamplona. In at least a hundred other Spanish towns the people celebrate their saints by running with bulls, but outsiders don't take much notice. That's because it was to Pamplona that Ernest Hemingway came in 1925, and his resulting novel, *The Sun Also Rises*, did as much for the town's fiesta as it did for the writer.

Of course, the book isn't about the fiesta, which serves mainly as the backdrop to the futile grasping at happiness by several neurotic people. But there was no stopping the hordes that responded to the novel's depictions. Drinking wine at 8 o'clock in the morning! Staying up all night and dancing with strangers in the street! Bullfights! To young foreigners with a little extra money, it was irresistible.

And still is.

Except for the bulls, Hemingway wouldn't recognize the fiesta today. The comfortable little town of Pamplona, a mainly rural center of 30,000 in his day, has grown into an industrial city of 200,000, home to a Volkswagen factory and two universities. Thanks to its location linking Spain and France, though, it has never been anything like a backwater, and even without San Fermin it would attract the reasonably curious traveler. The first people, warlike Vascons, settled here as early as 1000 B.C.: they called it "Iruna," meaning "the city," as their Basque descendants still do. In 75 B.C. the Roman general Cnaeus Pompeius Magnus established a Roman town on the previous settlement, exploiting its strategic position and honoring it with his name, "Pompaelo." As the capital of the Kingdom of Navarre, which stretched across the Pyrenees into France, medieval Pamplona flourished on both commercial traffic and that of Christian pilgrims headed for Santiago de Compostela; the stern Gothic churches of San Saturnino and San Nicolas still brim with ecclesiastical treasures. And three-quarters of the Renaissance fortifications of the old city remain, making Pamplona's massive walls among the best-preserved defenses in Spain.

ERLA ZWINGLE, *based in Venice, writes about subjects ranging from sports to photography to art and culture. More pictures by photographer* **TINO SORIANO** *can be seen at tinosoriano.com.*

A once-obscure festival made famous by Ernest Hemingway (in 1927 at Pamplona) in *The Sun Also Rises*, San Fermin kicks off July 6 with a crush of red, white and happy revelers.

AKG-IMAGES

But it's the fiesta that people come for, and every year from July 6 to 14, Pamplona is inundated by a kind of storm surge of revelers. Over nine days, one and a half million people pass through, every one of them seemingly heading for the historic center of town, an area of about two square miles. Only a few come for more than two or three days, but the flow is incessant. "Fiesta" doesn't begin to cover the event's scope. It's more like a biblical visitation, a triathlon with music, for which the town provides medical emergency squads on 24-hour alert, thousands of volunteers to clean the streets of tons of garbage, extra police patrols and temporary toilets. Pamplonans who can't take it pack up and leave town.

Still, there are many who stay, and not because they have to. They adore their fiesta and live it with their whole hearts

despite the chaos. Visitors "all think from the outside looking in that the fiesta is all about drinking and staying up all night, but it's not," said native Pamplonan Nekane Arrizibita, 38. In fact, if you filter out the foreigners and focus on the locals, you discover a fiesta that's hidden in plain view: laughing children, tranquil grandparents, groups of various ages sharing a happiness that has nothing to do with drinking themselves senseless, sleeping on the grass or running with the bulls. It's about forgetting the rules, declaring a sort of invisible social cease-fire that allows everyone to be spontaneous once a year without fear of repercussion—a sense of freedom that can be appreciated only by people who live their entire life in a conservative, religious town in conservative, religious northern Spain.

"Almost everyone here knows you, or knows someone who knows you," explained Eduardo Arregui, a 31-year-old telecommunications engineer. "It's not easy doing crazy things when you know that someone you know can see you. But during San Fermin, there's a kind of green light for almost everything. It's like you've put on a mask. You're not yourself anymore but the person you want to be." Pamplonans, he continued, "don't think of drinking and dancing and partying as the fiesta, but as the background of the fiesta—the fiesta each person lives inside of themselves."

Many local celebrants prefer to watch the running of the bulls on a public TV. Once a rite of passage for Pamplona boys, today the *encierro* draws thrill-seekers from all over the world.

IT STARTS WITH A BANG—30 of them, a succession of rockets fired from the balcony of the Casa Consistorial, or Town Hall, at noon on July 6, accompanied by a rain of red and white streamers and confetti. Called Txupinazo, this is the official launch of the festivities. Below, in the plaza, a packed crowd somehow manages to spray wild deluges of cheap champagne everywhere. (Photographers shooting pictures out of windows even three stories up know to wrap themselves in typhoon-proof plastic.) Most everyone ties a red bandanna around his neck, the town band begins to play traditional Basque songs, and roars of pleasure compete with the sounds of rockets overhead. Of course it is all going to end in tears—204 hours later, to be precise, at midnight July 14, when many of the same people will meet again at the same place for the closing ceremony, the "Pobre de mi.'" They will untie their red bandannas, hold candles and sing mournfully, "Poor me, poor me, the fiesta has come to an end. . . . "

But nobody is thinking about that now. The hordes fan out across the center of town, gamboling across granite streets slick with beer, champagne and sweat. Before long blood is added to the mix, as revelers carouse amid 30 tons of mostly broken bottles in the square. Everywhere there's noise, from the *charangas*, the brass bands of the irrepressible social clubs known as *penas*, to the throbbing hypnotic notes of the *txalparta*, a Basque mountain instrument made of slabs of cherry, acacia and beechwood, played like a heavy timber xylophone, to live concerts, fireworks, people

singing, children crying, high-power hoses spraying the street clean, the occasional siren.

While tourists, many already well oiled, head for the stone pillar in the St. Cecilia fountain to jump from it into the arms—they hope—of waiting mates, Pamplonans are gathering for festive lunches. In restaurants throughout the city, tables reserved months ahead fill with clans dressed in traditional garb of red and white, two Basque customary colors that represent the blood shed in the struggle for independence and the Catholic faith. Through the cigar smoke a cheer will suddenly rise: "*¡Viva San Fermin!*" And everyone responds "*¡Viva!*" And again, in Basque: "*¡Gora San Fermin!*" "*¡GORA!*"

AT 7:00 EACH MORNING of the nine-day fiesta, squads of men start to set up wooden barriers along the path of the *encierro*, the daily running of the bulls. On this particular day as many as 6,000 runners, mostly men above the official minimum age of 18, have chanted the traditional prayer to San Fermin three times for protection and have positioned themselves at various points along the stretch of streets from the bullpen to the Plaza de Toros, where the animals will be shunted into stalls to await the evening's *corrida*, or bullfight. Thousands of onlookers cling to the barriers, and every window and balcony overlooking the route is crammed with even more spectators, many of whom have paid handsomely for the view.

At 8:00 a.m., a rocket signals that the six bulls have burst from the holding pen and are on their way. Why bulls, and why are they running? Religious rituals have often required an animal sacrifice; here the bullfight has taken over this role. The bulls have always been driven through town to the bullring, and running in front of them probably began spontaneously. To show courage, or to show one's faith in the saint's protection, once had real importance. For some today it still

For Pamplona's children, San Fermin's daily highlight is the parade of giants: royal effigies representing the four corners of the earth. Kids who stay up late can watch fireworks explode from a plastic bull's head, while a slightly older crowd can catch people who swan dive from a pillar in a fountain.

Sun or Shadow?

Where you sit in the bullring says it all

Pamplona's bullring, inaugurated three years before Hemingway's first visit to Pamplona, is the second largest in Spain. Its 19,529 seats sell out far in advance, and scalping flourishes despite the efforts of police to stop it.

The ring's shadow divides the spectators. Those in the shade tend to stare silently at the struggle below, analyzing the talent of the matador and the merits of the bull. Most of those in the sun are here to party, and if they care about what's going on below they are absolutely on the side of the bull.

Members of social clubs called *penas* eat, drink, sing raucous scraps of song to the brassy accompaniment of their bands and, as the heat and booze begin to take their toll, start throwing things at each other: food, wine, pieces of ice from their coolers. "We're not concerned about the image we're projecting to the outside," said Fermin Paularena, a member of the Irrintzi pena. "We're concerned about having a good time." But no matter the side of the shadow line you find yourself in, it seems strange to hear a band blaring theme songs from American movies while a lone, slender man faces a lunging black silhouette that seems lifted intact from ancient cave drawings in Altamira, 175 miles away.

It all comes together in an instant: the powerful impact of the bull's muscular ink-black shape against the blinding yellow of the sand, and the bull's mythic power, which gives off a primitive vibration of danger. The incongruity of the jaunty soundtrack with the voiceless drama of panting breath and dripping blood is one of San Fermin's most indelible impressions. **—E.Z.**

does. The bulls cover the half-mile distance in about two minutes; there are points at which the beasts have been clocked at speeds faster than an Olympic sprinter. Runners have to choose which section of street they want to run, because they'll be with the bulls for only about ten yards. At street level it is all hugely anticlimactic (unless you happen to be at the spot where a runner makes a mistake). If you manage to see anything besides a mob of other people, you will glimpse the bulls for about three seconds.

To a runner, of course, it's something else entirely. "It's adrenaline over the top," said Eduardo Arregui, the young engineer, who has run the encierro every year for nearly half his life. "One or two months before San Fermin, I start thinking about the bulls, and I feel my heart pumping, and sweating. As the moment comes closer, it gets worse." And then? "When the rocket goes off," says Mikel Aranburu, a tax assessor who teaches the Basque flute, "the fear goes away and everything goes blank. And when the bulls pass by, you feel extreme relief. You feel exaltation, friendship, life. It's a very, very intense experience. You're hooked. It's like a drug, and you're almost begging for more."

Bandannas aloft and already dreaming of next year, thousands sing the festival's sorrowful closing song. "Every single part of San Fermin," observes one local, "marks a cycle in your life."

But it's a drug that fewer and fewer locals care to try. "It used to be a rite of passage, an initiation, for the boys of Pamplona," Aranburu added. "Their fathers and grandfathers and elder brothers had run. So if you were 15 or 16 and you hadn't run the encierro, you weren't a man yet. But now because of the media, the encierro has changed from being a Pamplona thing to an international event. Now the boys of Pamplona don't have the same interest in it; they prefer socializing, drinking, smoking and hanging out." Most Pamplonans now watch it on TV.

After the encierro, bars and restaurants fill up again, and the tumult on the blinding hot streets slows to a leisurely swarm. Mime artists find a spot of shade to continue their silent gesticulating, while makeshift stands offer plastic glasses of *kalimotxo*, a concoction of equal parts red wine and Coca-Cola. Habitués of the bar at the Hotel Yoldi favor *shampu* (lemon sorbet and champagne in real glasses). The drinks display an unusual touch of social distinction, but whatever your beverage, this would be a good moment to look for a shady bench along the tree-lined battlements and pause to reflect on a few themes.

Religion, perhaps. Pamplona is a major center of Opus Dei, the conservative Catholic lay movement. And when, on July 7, San Fermin's relics are carried from his chapel in the Church of San Lorenzo to the Cathedral of Santa Maria for solemn high Mass, it's an emotional procession. But this is the only day religion rules; the rest of the week, San Fermin has to take his chances like everybody else.

"San Fermin would be crying if he could see what's going on at his feast," Padre Jesus Labari, the parish priest of San Lorenzo told me. "There's no sleep. And the odor of urine and dirt in the street." On the other hand, "the majority of people who come for the fiesta don't leave the city without visiting the saint, even if they're not believers. I'm no fool. I know that during the year a lot of them don't go to church. But every year there are more and more people who come to the procession. It's thrilling—the people really do cry when they see the saint pass by them."

While the fiesta still retains elements that a jongleur or wandering friar would recognize—street performers, flashes of intense piety, that wild sense of freedom—many of its best-known customs are surprisingly recent. Several years ago, for example, children spontaneously offered a few flowers to San Fermin. Now an entire morning is devoted to the children and their flowers—red and white carnations, yellow roses, orange gladiolus—laced into a broad trellis behind the saint. Dressing in red and white began in the 1960s; before that, celebrants wore street clothes. The bulls used to run at 6:00 a.m., but since 1974, the time has crept ever later to today's 8:00 a.m. Even the Txupinazo began to take form only when people spontaneously began to set off rockets in the Plaza del Castillo, half a century ago.

THE LAST DAY of the fiesta is July 14. You can feel it seeping away. The music seems a little sadder, and people seem to move a little slower. Jeweler Marcial Acuna Lopez stands at Plaza San Nicolas, which tomorrow, like the whole city, will be empty of revelers. "Pamplona will seem like a spectacular painting that has been cut out of its frame and carried away under cover of darkness," he tells me. "When San Fermin is over, all you see is the frame. And it makes you think: during the fiesta, everybody talks to one another. The rest of the year everybody is very serious. Why aren't we always the way we are in San Fermin?"

It's an excellent question of the kind no philosopher has been able to answer. Why can't we always be happy? Why do we have to grow up, get old, die? In Pamplona, during San Fermin, nobody asks such questions. And the only answer that makes any sense is that next year the fiesta will come again.

Visit Smithsonian.com for more information about Pamplona.

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What's Eating America

Corn is one of the plant kingdom's biggest successes. That's not necessarily good for the United States

BY MICHAEL POLLAN

RICHARD HAMILTON SMITH

DESCENDANTS of the Maya living in Mexico still sometimes refer to themselves as "the corn people." The phrase is not intended as metaphor. Rather, it's meant to acknowledge their abiding dependence on this miraculous grass, the staple of their diet for almost 9,000 years.

For an American like me, growing up linked to a very different food chain, yet one that is also rooted in corn, *not* to think of himself as a corn person suggests either a failure of imagination or a triumph of capitalism.

Or perhaps a little of both. For the great edifice of variety and choice that is an American supermarket rests on a remarkably narrow biological foundation: corn. It's not merely the feed that the steers and the chickens and the pigs and the turkeys ate; it's not just the source of the flour and the oil and the leavenings, the glycerides and coloring in the processed foods; it's not just sweetening the soft drinks or lending a shine to the magazine cover over by the checkout. The supermarket itself—the wallboard and joint compound, the linoleum and fiberglass and adhesives out of which the building itself has been built—is in no small measure a manifestation of corn.

There are some 45,000 items in the average American supermarket, and more than a quarter of them contain corn. At the same time, the food industry has done a good job of persuading us that the 45,000 different items or SKUs (stock keeping units) represent genuine variety rather than the clever rearrangements of molecules extracted from the same plant.

How this peculiar grass, native to Central America and unknown to the Old World before 1492, came to colonize so much of our land and bodies is one of the plant world's

greatest success stories. I say the *plant* world's success story because it is no longer clear that corn's triumph is such a boon to the rest of the world.

AT ITS MOST BASIC, the story of life on earth is the competition among species to capture and store as much energy as possible—either directly from the sun, in the case of plants, or, in the case of animals, by eating plants and plant eaters. The energy is stored in the form of carbon molecules and measured in calories: the calories we eat, whether in an ear of corn or a steak, represent packets of energy once captured by a plant. Few plants can manufacture quite as much organic matter (and calories) from the same quantities of sunlight and water and basic elements as corn.

The great turning point in the modern history of corn, which in turn marks a key turning point in the industrialization of our food, can be dated with some precision to the day in 1947 when the huge munitions plant at Muscle Shoals, Alabama, switched over from making explosives to making chemical fertilizer. After World War II, the government had found itself with a tremendous surplus of ammonium nitrate, the principal ingredient in the making of explosives. Ammonium nitrate also happens to be an excellent source of nitrogen for plants. Serious thought was given to spraying America's forests with the surplus chemical, to help the timber industry. But agronomists in the Department of Agriculture had a better idea: spread the ammonium nitrate on farmland as fertilizer. The chemical fertilizer industry (along with that of pesticides, which are based on the poison gases developed for war) is the product of the government's effort to convert its war machine to peacetime purposes. As the Indian farmer activist Vandana Shiva says in her speeches, "We're still eating the leftovers of World War II."

F_1 hybrid corn is the greediest of plants, consuming more fertilizer than

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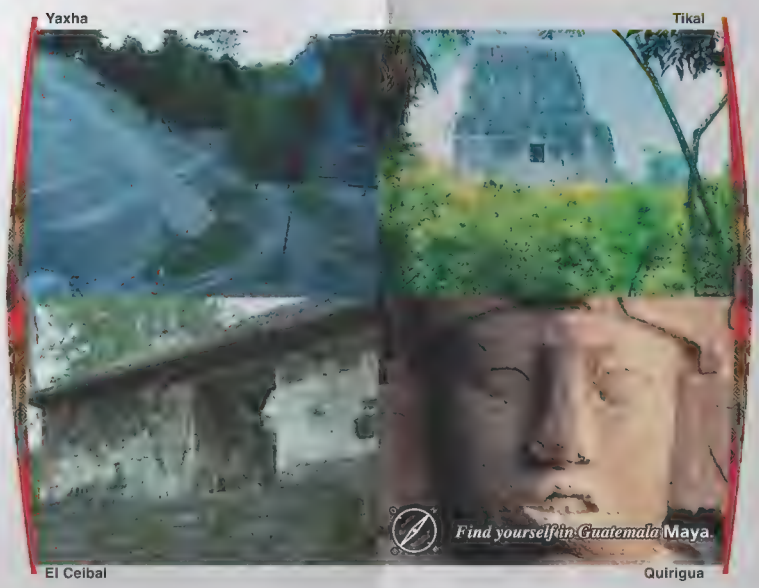

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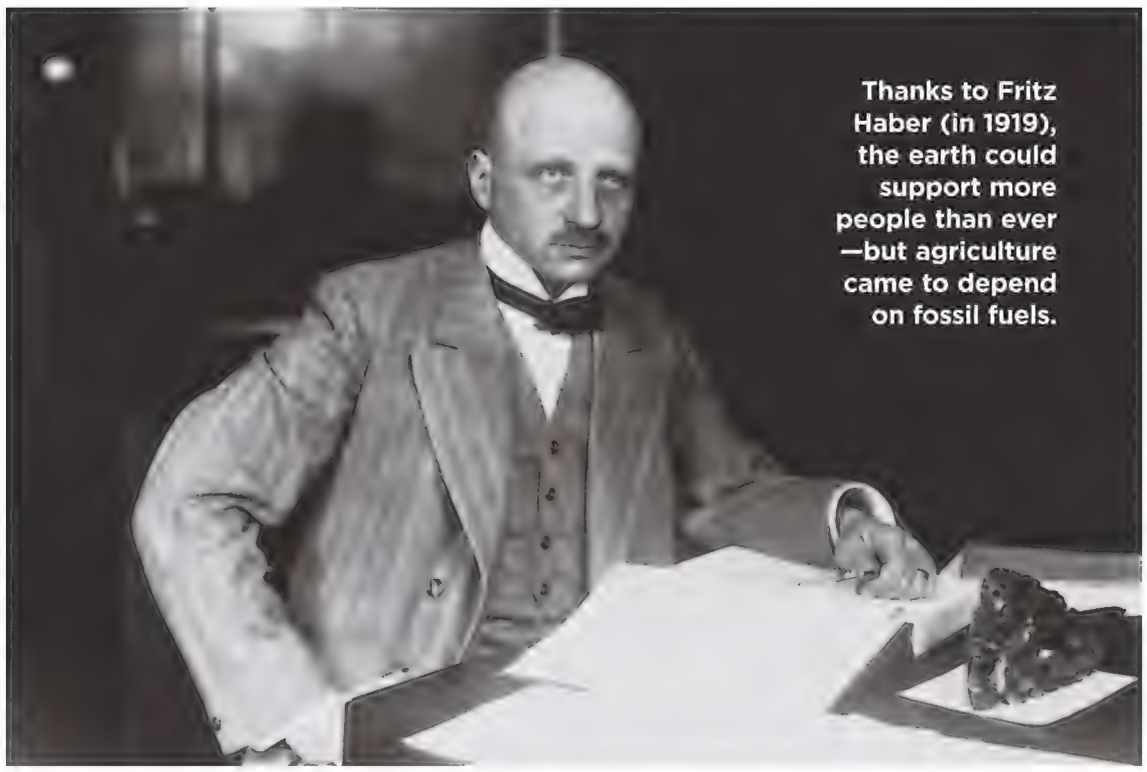
any other crop. Though F_1 hybrids were introduced in the 1930s, it wasn't until they made the acquaintance of chemical fertilizers in the 1950s that corn yields exploded. The discovery of synthetic nitrogen changed everything—not just for the corn plant and the farm, not just for the food system, but also for the way life on earth is conducted.

All life depends on nitrogen; it is the building block from which nature assembles amino acids, proteins and nucleic acid; the genetic information that orders and perpetuates life is written in nitrogen ink. But the supply of usable nitrogen on earth is limited. Although earth's atmosphere is about 80 percent nitrogen, all those atoms are tightly paired, nonreactive and therefore useless; the 19th-century chemist Justus von Liebig spoke of atmospheric nitrogen's "indifference to all other substances." To be of any value to plants and animals, these self-involved nitrogen atoms must be split and then joined to atoms of hydrogen.

Chemists call this process of taking atoms from the atmosphere and combining them into molecules useful to living things "fixing" that element. Until a German Jewish chemist named Fritz Haber figured out how to turn this trick in 1909, all the usable nitrogen on earth had at one time been fixed by soil bacteria living on the roots of leguminous plants (such as peas or alfalfa or locust trees) or, less commonly, by the shock of electrical lightning, which can break nitrogen bonds in the air, releasing a light rain of fertility.

In his book *Enriching the Earth: Fritz Haber, Carl Bosch and the Transformation of World Food Production*, Vaclav Smil pointed out that "there is no way to grow crops and human bodies without nitrogen." Before Haber's invention, the sheer amount of life earth could support—the size of crops and therefore the number of human bodies—was limited by the amount of nitrogen that bacteria and lightning could fix. By 1900, European scientists had recognized that unless a way was found to augment this naturally occurring nitrogen, the growth of the human population would soon



Thanks to Fritz Haber (in 1919), the earth could support more people than ever—but agriculture came to depend on fossil fuels.

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grind to a very painful halt. The same recognition by Chinese scientists a few decades later is probably what compelled China's opening to the West: after Nixon's 1972 trip, the first major order the Chinese government placed was for 13 massive fertilizer factories. Without them, China would have starved.

This is why it may not be hyperbole to claim, as Smil does, that the Haber-Bosch process for fixing nitrogen (Bosch gets the credit for commercializing Haber's idea) is the most important invention of the 20th century. He estimates that two of every five humans on earth today would not be alive if not for Fritz Haber's invention. We can easily imagine a world without computers or electricity, Smil points out, but without synthetic fertilizer billions of people would never have been born. Though, as these numbers suggest, humans may have struck a Faustian bargain with nature when Fritz Haber gave us the power to fix nitrogen.

FRITZ HABER? No, I'd never heard of him either, even though he was awarded the Nobel Prize in 1918 for "improving the standards of agriculture and the well-being of mankind." But the reason for his obscurity has less to do with the importance of his work than an ugly twist of his biography, which recalls the dubious links between modern warfare and industrial agriculture: during World War I, Haber threw himself into the German war effort, and his chemistry kept alive Germany's hopes for victory, by allowing it to make bombs from synthetic nitrate. Later, Haber put his genius for chemistry to work developing poison gases—ammonia, then chlorine. (He subsequently developed Zyklon B, the gas used in Hitler's concentration camps.) His wife, a chemist sickened by her husband's contribution to the war effort, used his army pistol to kill herself; Haber died, broken and in flight from Nazi Germany, in a Basel hotel room in 1934.

His story has been all but written out of the 20th century. But it embodies the paradoxes of science, the double edge to our manipulations of nature, the good and evil that can flow not only from the same man but from the same knowledge. Even Haber's agricultural benefaction has proved to be a decidedly mixed blessing.

When humankind acquired the power to fix nitrogen, the basis of soil fertility shifted from a total reliance on the energy of the sun to a new reliance on fossil fuel. That's because the Haber-Bosch process works by combining nitrogen and hydrogen gases under immense heat and pressure in the presence of a catalyst. The heat and pressure are supplied by prodigious amounts of electricity, and the hydrogen is supplied by oil, coal or, most commonly today, natural gas. True, these fossil fuels were created by the sun, billions of years ago, but they are not re-

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newable in the same way that the fertility created by a legume nourished by sunlight is. (That nitrogen is fixed by a bacterium living on the roots of the legume, which trades a tiny drip of sugar for the nitrogen the plant needs.)

Liberated from the old biological constraints, the farm could now be managed on industrial principles, as a factory transforming inputs of raw material—chemical fertilizer—into outputs of corn. And corn adapted brilliantly to the new industrial regime, consuming prodigious quantities of fossil fuel energy and turning out ever more prodigious quantities of food energy. Growing corn, which from a biological perspective had always been a process of capturing sunlight to turn it into food, has in no small measure become a process of converting fossil fuels into food. More than half of all the synthetic nitrogen made today is applied to corn.

From the standpoint of industrial efficiency, it's too bad we can't simply drink petroleum directly, because there's a lot less energy in a bushel of corn (measured in calories) than there is in the half-gallon of oil required to produce it. Ecologically, this is a fabulously expensive way to produce food—but "ecologically" is no longer the operative standard. In the factory, time is money, and yield is everything.

One problem with factories, as opposed to biological systems, is that they tend to pollute. Hungry for fossil fuel as hybrid corn is, farmers still feed it far more than it can possibly eat, wasting most of the fertilizer they buy. And what happens to that synthetic nitrogen the plants don't take up? Some of it evaporates into the air, where it acidifies the rain and contributes to global warming. Some seeps down to the water table, whence it may come out of the tap. The nitrates in water bind to hemoglobin, compromising the blood's ability to carry oxygen to the brain. (I guess I was wrong to suggest we don't sip fossil fuels directly; sometimes we do.)

It has been less than a century since Fritz Haber's invention, yet already it has changed earth's ecology. More than half of the world's supply of usable ni-

trogen is now man-made. (Unless you grew up on organic food, most of the kilo or so of nitrogen in your body was fixed by the Haber-Bosch process.) "We have perturbed the global nitrogen cycle," Smil wrote, "more than any other, even carbon." The effects may be harder to predict than the effects of the global warming caused by our disturbance of the carbon cycle, but they are no less momentous.

The flood of synthetic nitrogen has fertilized not just the farm fields but the forests and oceans, too, to the benefit of some species (corn and algae being two of the biggest beneficiaries) and to the detriment of countless others. The ultimate fate of the nitrates spread in Iowa or Indiana is to flow down the Mississippi into the Gulf of Mexico, where their deadly fertility poisons the marine ecosystem. The nitrogen tide stimulates the wild growth of algae, and the algae smother the fish, creating a "hypoxic," or dead, zone as big as New Jersey—and still growing. By fertilizing the world, we alter the planet's composition of species and shrink its biodiversity.

And yet, as organic farmers (who don't use synthetic fertilizer) prove every day, the sun still shines, plants and their bacterial associates still fix nitrogen, and farm animals still produce vast quantities of nitrogen in their "waste," so-called. It may take more work, but it's entirely possible to nourish the soil, and ourselves, without dumping so much nitrogen into the environment. The key to reducing our dependence on synthetic nitrogen is to build a more diversified agriculture—rotating crops and using animals to recycle nutrients on farms—and give up our vast, nitrogen-guzzling monocultures of corn. Especially as the price of fossil fuels climbs, even the world's most industrialized farmers will need to take a second look at how nature, and those who imitate her, go about creating fertility without diminishing our world.

MICHAEL POLLAN *teaches journalism at the University of California at Berkeley.*

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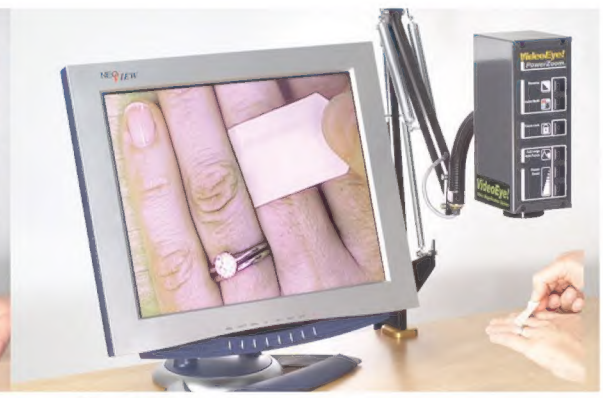

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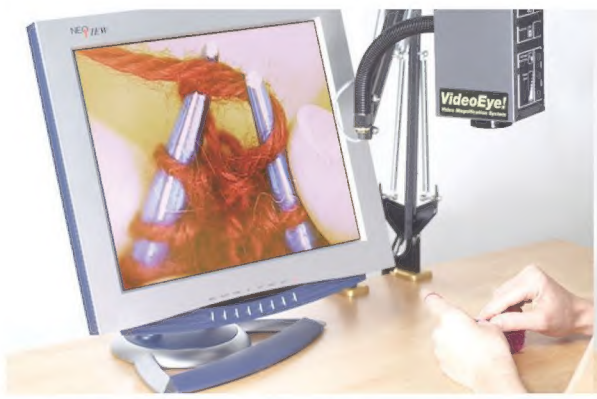

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Altered States

There's a fine line between vision and revision. But it can be crossed **BY MARTIN MILLER**

JUDAS ISCARIOT, long reviled as history's quintessential betrayer, was actually the best friend of Jesus and turned him over to authorities only because Jesus asked him to, according to the Gospel of Judas, a long-lost document revealed Thursday.

—The *Los Angeles Times*, April 6, 2006

THE REVELATION that Jesus and Judas were actually pals to the end may soon be regarded as merely interesting, given the recent unearthing of so many other literary and historical texts whose startling contents could reshape the way we think about Western civilization. To wit:

Martin Luther is credited with sparking the Protestant Reformation by hammering his 95 theses to a Wittenberg church door in 1517. His austere and defiant prose, miraculously crammed into fewer than 100 talking points, preached salvation through repentance and railed against the practice of selling indulgences. But three additional theses, discovered under the floorboards of a centuries-old Bavarian beer garden, now call into question the Augustinian monk's commitment to his cause. As translated on the Web site protestantsgonewild.com:

"No. 96: The Pope and his agents have overstepped their divine authority by granting indulgences so freely.

"No. 97: But I know someone who has not.

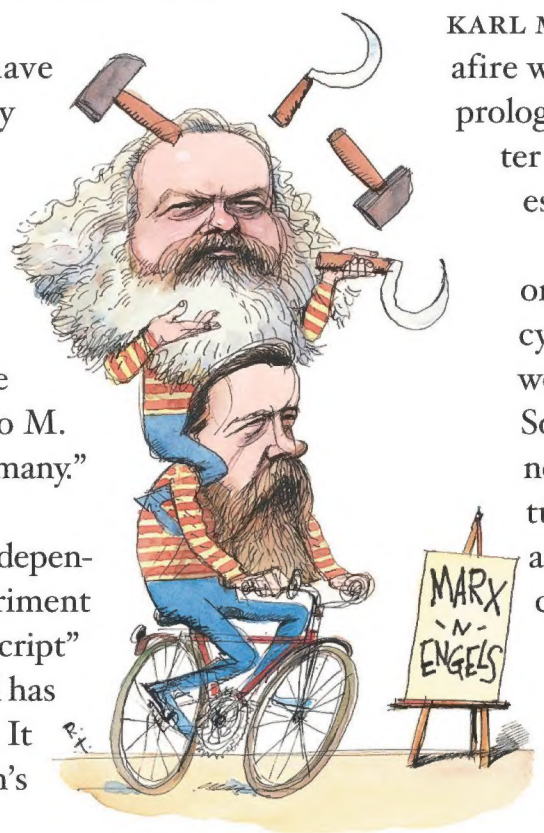
"No. 98: Please specify the nature of your offense against the Lord, so that a payment schedule may be sent. Please remit to: Sack of Indulgences Fund, c/o M. Luther, Castle Church, Wittenberg, Germany."

THOMAS JEFFERSON'S Declaration of Independence heralded the bold American experiment with force and dignity. However, a "Post Script" inadvertently separated from the original has just turned up at the National Archives. It suggests that the 33-year-old Virginian's rhetoric may have outrun his convictions:

"This Declaration is intended to dissolve only those Bonds between Us the People and Him the King. Unintended consequences may Include Taxation despite Representation. Present passion is no guarantee of Future performance. All who heed this Declaration agree to Hold Harmless its Signatories and their Heirs & Assigns. Should Negotiations for French military Aid collapse, the provisions listed Herein will be rendered Null and Void."

HENRY DAVID THOREAU'S woodsy 19th-century journey of self-discovery yielded *Walden*, which championed moderation in all things and a harmonious relationship between man and the environment. But then, more pages, written in his hand, were found nailed to a rafter in his cabin.

"If I am bitten by one more damned mosquito, I am going to burn down the whole forest. And another thing, it's cold out here. And lonely. *Very* lonely. My best friend is a piece of tree bark that looks like Zachary Taylor's head. Thank God for moonshine. And guns! Pow! Pow! Pow! *Blam!* Pow! Gimme a life of loud desperation!"



RICHARD THOMPSON

KARL MARX AND Friedrich Engels set the globe afire with their Communist Manifesto, but a prologue recently disgorged from the dead-letter office of the Brussels postal service raises questions about their true motives:

"Dear Reader, This work began as a one-act satire titled 'Uncle Vanya's Red Bicycle,' but the comedy did not translate well to the stage. (The lighting was poor.) So we have recast it into this new form. A note on the typography: owing to an unfortunate incident at the printer's, 'proletariat' should be read as 'drunken circus clowns' throughout."

Spectral photography analysts are still examining Mark Twain's drafts of his most famous work to be certain he did not write *Huckleberry* the *Finn*.